Veeam ONE

Version 12

Deployment Guide

December, 2023

NOTE

Read the End User Software License Agreement before using the accompanying software programs. Using any part of the software indicates that you accept the terms of the End User Software License Agreement.

Contents

Contacting Veeam Software

At Veeam Software we value feedback from our customers. It is important not only to help you quickly with your technical issues, but it is our mission to listen to your input and build products that incorporate your suggestions.

Customer Support

Should you have a technical concern, suggestion or question, visit the Veeam Customer Support Portal to open a case, search our knowledge base, reference documentation, manage your license or obtain the latest product release.

Company Contacts

For the most up-to-date information about company contacts and office locations, visit the Veeam Contacts Webpage.

Online Support

If you have any questions about Veeam products, you can use the following resources:

- Full documentation set: veeam.com/documentation-guides-datasheets.html
- Veeam R&D Forums: forums.veeam.com

About This Document

This guide describes deployment scenarios for Veeam ONE, provides information about the product design and structure and offers step-by-step instructions for successful installation, configuration and updating.

Intended Audience

The guide is intended for anyone who plans to use the Veeam ONE solution. It is primarily aimed at administrators managing Veeam Backup & Replication, VMware vSphere, VMware Cloud Director or Microsoft Hyper-V environments, but can also be helpful for other current and perspective Veeam ONE users.

About Veeam ONE

Veeam ONE is a comprehensive solution developed by Veeam Software for managing virtual and data protection environments. Veeam ONE enables real-time monitoring, business documentation and management reporting for Veeam Backup & Replication, Veeam Backup for Microsoft 365, VMware vSphere, VMware Cloud Director and Microsoft Hyper-V.

Veeam ONE is designed to give IT administrators peace-of-mind to manage every aspect of the modern virtual environment. Every Veeam ONE capability meets a specific business challenge — from monitoring the state of VMs and their performance, generating reports for capacity planning and upgrade purposes, to providing management with transparent and granular views of the virtual infrastructure from a business-oriented perspective.

Veeam ONE incorporates the following software components:

- **Veeam ONE Client** is the primary tool used for monitoring the virtual environment, Veeam Backup & Replication and Veeam Backup for Microsoft 365 infrastructures. In the Veeam ONE Client, you can manage, view and interact with alarms and monitoring data, analyze performance of virtual and backup infrastructure components, track the efficiency of data protection operations, troubleshoot issues, group your virtual infrastructure and administer monitoring settings.
- **Veeam ONE Web Client** provides a set of dashboards and reports that allow you to verify configuration issues, optimize resource allocation and utilization, track implemented changes, plan capacity growth and track whether mission-critical workloads are properly protected in the virtualized datacenter.

Veeam ONE Client and Veeam ONE Web Client are installed with one setup and provide a single cohesive solution.

Veeam ONE Architecture

Veeam ONE relies on client-server architecture to work effectively in environments of any size and complexity. Veeam ONE architecture includes the following structural components:

- **Veeam ONE Server**

  Veeam ONE Server is responsible for collecting data from virtual and Veeam Backup & Replication servers, and storing this data into the database. As part of Veeam ONE Server, the following components are installed: Veeam ONE Monitoring Service, Veeam ONE Reporting Service, Veeam ONE Error Reporting Service, and Veeam ONE Web API.

- **Veeam ONE Web Services**

  Veeam ONE Web Services enable access to Veeam ONE web server and handle rendering of reports.

- **Veeam ONE Client**

  Veeam ONE Client is a client part for Veeam ONE Server. Veeam ONE Client communicates with the Veeam ONE Server installed locally or remotely.

- **Veeam ONE Database**

  Veeam ONE database stores data used by product components. The database is hosted on a Microsoft SQL Server that can run remotely, or can be co-installed with other Veeam ONE components.

- **Veeam ONE Agent**

  Veeam ONE agent is a component that enables communication with Veeam Backup & Replication servers, performs collection of logs, and sends remediation commands.

  Veeam ONE agent can work in the following modes:

  - **Server**

    In this mode, Veeam ONE agent is responsible for analyzing log data and signature updates.

    Veeam ONE agent server is included into Veeam ONE installation package and deployed on the machine running Veeam ONE server during product installation.

  - **Client**

    In this mode, Veeam ONE agent is responsible for collecting logs and executing remediation actions on Veeam Backup & Replication servers.

    By default, Veeam ONE agent client is deployed on Veeam Backup & Replication servers when you connect these servers to Veeam ONE.

Veeam ONE architectural components can be installed on a single machine, or run on dedicated machines. For details, see Deployment Scenarios.

Deployment Scenarios

Veeam ONE supports two deployment scenarios:

- **All-in-one**

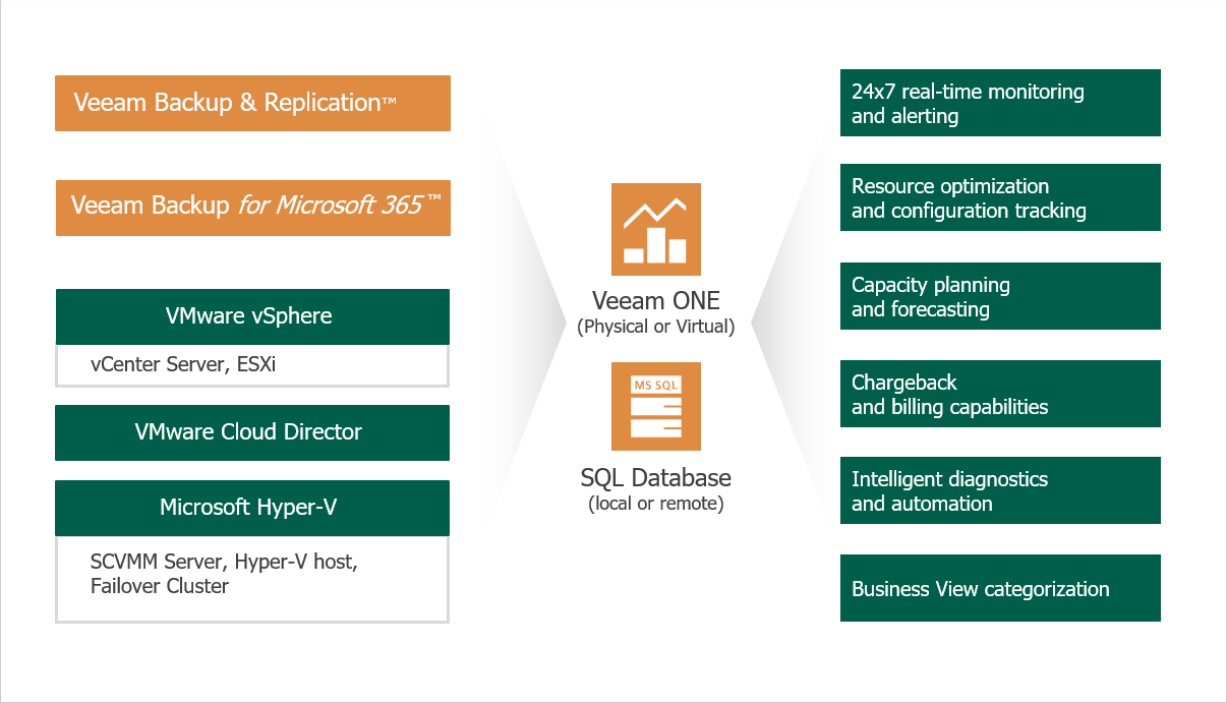
  The all-in-one deployment scenario is ideal if you want to consolidate the entire product functionality in one place by installing all product architectural components on a single machine. This scenario is preferable for small- to medium-scale deployments.

- **Custom**

  The custom deployment scenario is more suitable if you want to separate client/server roles and install product architectural components on different machines. This scenario is recommended for large-scale deployments. For details on large-scale deployment recommendations, see Sizing and Scalability Best Practices.

All-in-One Deployment

The following diagram illustrates the all-in-one Veeam ONE deployment scenario.



In the all-in-one deployment scenario:

- All Veeam ONE architectural components (Veeam ONE Server, Veeam ONE Web Services, Veeam ONE Client and Veeam ONE agent server) are installed altogether on a single machine (either physical or virtual).
- To store data retrieved from connected servers, a local or remote Microsoft SQL Server instance is required. If you have a Microsoft SQL Server instance that meets Veeam ONE system requirements, you can adopt it for Veeam ONE deployment. Otherwise, you can install a new Microsoft SQL Server instance during the product installation — Veeam ONE setup package includes Microsoft SQL Server 2017 Express Edition.

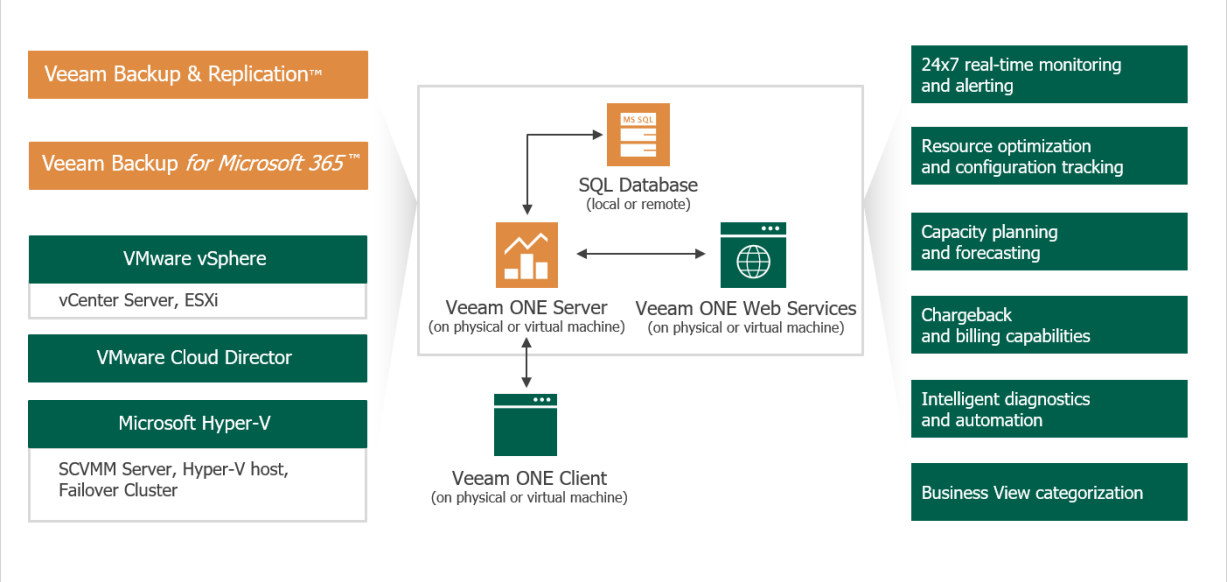
  > **NOTE:**
  > - For production deployments, it is recommended to use a remote Microsoft SQL Server installation. It is also recommended to run Veeam ONE services on a dedicated server. Such distributed installation will improve performance of Veeam ONE services.
  > - If you choose to host Veeam ONE database on Microsoft SQL Server Express, consider is a 10 GB database size limitation for this edition. For details, see Editions and Supported Features for SQL Server.

- To enable multi-user access to real-time performance statistics and configurable alarms, you can additionally install one or more instances of Veeam ONE Client on separate machines. Thus, you will be able to access Veeam ONE functionality either from a local machine or from remote computers.

For instructions on the all-in-one deployment procedure, see All-in-One Installation.

Custom Deployment

The following diagram illustrates the custom Veeam ONE deployment scenario.



The custom deployment scenario relies on a distributed architecture where server and client parts are separated and installed on different machines (physical or virtual). In the custom deployment scenario:

- Veeam ONE Server and Veeam ONE Web Services components are installed on separate machines.
- To enable multi-user access to real-time performance statistics and configurable alarms, you can install one or more instances of Veeam ONE Client on remote machines.
- To store data retrieved from connected servers, a local or remote Microsoft SQL Server instance is required as a supporting system. If you already have a Microsoft SQL Server instance that meets Veeam ONE system requirements, you can adopt it for Veeam ONE deployment. Otherwise, you can install a new Microsoft SQL Server instance during the product installation — Veeam ONE setup package includes Microsoft SQL Server 2017 Express Edition.

> **NOTE:**
> - For production deployments, it is recommended to use a remote Microsoft SQL Server installation. It is also recommended to run Veeam ONE services on a dedicated server. Such distributed installation will improve performance of Veeam ONE services.
> - If you choose to host Veeam ONE database on Microsoft SQL Server Express, consider is a 10 GB database size limitation for this edition. For details, see Editions and Supported Features for SQL Server.

The custom installation relies on a client-server model for data collection and communication.

- Server component collects data from virtual environment, Veeam Backup & Replication and Veeam Backup for Microsoft 365 servers and stores this data in the database.
- Veeam ONE Web Services enable access to Veeam ONE web server and handle rendering of reports.
- Veeam ONE Client communicates with Veeam ONE Server directly to obtain real-time virtual infrastructure performance data and data protection statistics.

For a successful Veeam ONE deployment, it is essential that the client components are aware of the Veeam ONE Server and internal Web API location, and can connect to them to retrieve and process data.

For instructions on the custom installation procedure, see Custom Installation.

Licensing Veeam ONE

To achieve full capability of Veeam ONE, you must obtain a license file and install it on the Veeam ONE server. If you do not install the license key, the product will operate in the *Community* (free) edition.

Licensed Objects

Veeam ONE can be licensed in two ways: per-socket and per-instance.

Per Socket Licensing

Veeam ONE can be licensed by the number of CPU sockets on managed VMware vSphere and Microsoft Hyper-V hosts. A license is required for every occupied motherboard socket as reported by the hypervisor API. A managed host is a host that is included in the monitoring and reporting scope with Veeam ONE inclusion rules. For details, see Choosing VMs and VM Containers to Monitor and Report On.

Per Instance Licensing

Veeam ONE can be licensed by the number of instances. An **instance** is a unit (or token) that is assigned to an object to make it manageable in Veeam ONE.

Veeam ONE per-instance license apply to the following types of objects:

- VMs protected by the monitored Veeam Backup & Replication servers and VMs included in the monitoring and reporting scope with Veeam ONE inclusion rules. For details on configuring monitoring scope for the virtual infrastructure, see Choosing VMs and VM Containers to Monitor and Report On.

  VMs protected by the monitored Veeam Backup & Replication servers and VMs included in the monitoring and reporting scope at the same time consume one instance from a license scope. Powered off replicas do not consume instances.

- Computers protected with Veeam Agent for Windows, Linux, Mac, IBM AIX and Oracle Solaris that are managed by Veeam Backup & Replication servers that you connect to Veeam ONE.

  The number of instances consumed by a managed computer depends on the mode in which the Veeam Agent job operates. For details on Veeam Agent licensing coefficients, see section *Instance calculation for Veeam Universal License* of the Veeam Licensing Policy.

- File shares protected by Veeam Backup & Replication servers that you connect to Veeam ONE. File shares are licensed per 500 GB of protected data.

- Nutanix AHV VMs protected by Veeam Backup & Replication servers that you connect to Veeam ONE.

- Cloud VMs, cloud databases and cloud file shares protected by Veeam Backup for Microsoft Azure, Veeam Backup for AWS and Veeam Backup for Google Cloud integrated with Veeam Backup & Replication servers that you connect to Veeam ONE.

- Microsoft 365 user accounts whose data is protected with Veeam Backup for Microsoft 365 servers connected to Veeam ONE.

  > **NOTE:**
  >
  > Rental program for Veeam Cloud & Service Providers (VCSP) includes free license usage for Veeam Backup for Microsoft 365 monitoring. Consider that when you generate the license, Microsoft 365 (10 users pack) costs 2 PPU. When you submit your monthly license usage report, the cost of the license will be changed to 0 PPU.

- Enterprise Applications protected with Veeam Plug-ins for SAP HANA, Oracle RMAN, SAP on Oracle.

- Object Storage data protected by Veeam Backup & Replication servers that you connect to Veeam ONE. Object storage protection is licensed per 500 GB of protected data.

Rental licenses intended for Veeam Cloud & Service Providers (VCSP) use **points** as license units. For details on on rental licenses, see Veeam ONE.

> **NOTE:**
>
> Infrastructure topology view in Veeam ONE and Veeam Backup & Replication must match. Otherwise license instances may be consumed incorrectly.

New Objects

To provide more flexibility and introduce a trial period for object management, Veeam ONE offers the concept of *New objects* for *Rental* licenses. New objects are objects that were discovered within the current calendar month. New objects are tracked separately. The **Used points** license counter reflects the number of points required for the new objects, that is the number of new objects multiplied by the object coefficient.

New objects do not consume the license points until the beginning of the new month. On the first day of the new month, the number of new objects is added to the number of managed objects and the **New points** counter in the license resets. New objects are not included in a license usage report.

> **NOTE:**
>
> The *New objects* counter in Veeam ONE does not include:
>
> - File shares protected by Veeam Backup & Replication
> - Nutanix VMs, Microsoft Azure VMs and AWS EC2 instances that are not included in the New objects counter on the monitored Veeam Backup & Replication server

License Types and Packages

Veeam Software offers paid and free licenses for Veeam ONE.

Paid Licenses

Veeam Software offers the following types of paid licenses for Veeam ONE:

- **Perpetual license** is a permanent full license. The perpetual license does not have an expiration date and allows using Veeam ONE versions issued before support expiration date.
- **Subscription license** is a full license that expires at the end of the subscription term. The subscription license term is normally 1-3 years from the license issue date.
- **Rental license** is a full license intended for Veeam Cloud & Service Providers (VCSP). The license expiration date is set according to the chosen rental program (normally 1-12 months from the license issue date).

  For details on Veeam ONE licensing for Veeam Cloud & Service Providers (VCSP), see section Veeam ONE of the Veeam Rental Licensing and Usage Reporting Guide.

The following terms apply to Veeam ONE paid licenses:

License Type	Licensing
Perpetual license	Per socket/Per instance
Subscription license	Per socket/Per instance
Rental license	Per point

Free Licenses

Veeam Software offers the following types of free licenses for Veeam ONE:

- **Evaluation license** is a full license that can be used for product evaluation. The trial license is valid for 30 days from the moment of product download.
- **Community Edition license** is a license with a limited set of features* but with no restrictions on the number of virtualization hosts, management servers and failover clusters you can monitor and report on. The community license includes 10 instances free of charge and does not have an expiration date. The community version does not require a license file during installation.
- **NFR license** is a full license that can be used for product demonstration, training and education. This license is not for resale or commercial use.

*For details on Veeam ONE Community Edition limitations, see Feature Comparison.

License Packages

Veeam ONE accepts licenses of the following packages:

- Veeam ONE

- Veeam Backup Essentials
- Veeam Availability Suite

For details on license packages, see Pricing and Packaging.

Compatibility with Veeam Backup & Replication Licenses

Veeam ONE allows monitoring of Veeam Backup & Replication servers if the following conditions are met for *Subscription* and *Perpetual* licenses:

Veeam Backup & Replication License		Veeam ONE License		
		Per Socket	Per Instance	
			Package = Suite/Essentials	Package = ONE
Per Socket	**Package = Backup**	VM workloads only*	All workloads	All workloads
	Package = Suite/Essentials	VM workloads only*	All workloads	All workloads
Per Instance	**Package = Backup**	Cannot add to Veeam ONE	Cannot add to Veeam ONE	Cannot add to Veeam ONE
	Package = Suite/Essentials	All workloads	All workloads	Cannot add to Veeam ONE
Merged	**Sockets (Package = Backup)** **Instances (Package = Backup)**	VM workloads only	Cannot add to Veeam ONE	All workloads
	Sockets (Package = Suite) **Instances (Package = Backup)**	VM workloads only	VM workloads only	All workloads
	Sockets (Package = Backup) **Instances (Package = Suite)**	All workloads	Non-VM workloads only	All workloads

Veeam Backup & Replication License		Veeam ONE License		
		Per Socket	Per Instance	
			Package = Suite/Essentials	Package = ONE
	Sockets (Package = Suite) **Instances (Package = Suite)**	All workloads	All workloads	All workloads
	Sockets (Package = Essentials) **Instances (Package = Suite)**	All workloads	All workloads	All workloads

where:

- **VM workloads only** – include VMs protected by the monitored Veeam Backup & Replication servers and VMs included in the monitoring and reporting scope with Veeam ONE inclusion rules.
- **Non-VM workloads only** – include other workloads protected by Veeam Backup & Replication servers that you connect to Veeam ONE: computers protected with Veeam Agent for Windows, Veeam Agent for Linux, Veeam Agent for Mac, Veeam Agent for IBM AIX, Veeam Agent for Oracle Solaris, file shares, Nutanix AHV VMs, Microsoft Azure VMs, AWS EC2 instances and Google Cloud Platform VMs.

*Includes 6 free instances that can be used for monitoring non-VM workloads.

NOTE:

Veeam ONE does not accept merged license files. If on Veeam ONE server you install a license with merged sockets and instances, it will behave as a per socket license.

Compatibility with Veeam Backup for Microsoft 365 Licenses

Veeam ONE allows monitoring of Veeam Backup for Microsoft 365 servers if the following conditions are met for the licenses:

Veeam Backup for Microsoft 365 License		Veeam ONE License					
		Rental	Subscription	Perpetual	Community	NFR	Evaluation
Subscription	**Package = M365**	○	○	○	○	○	●
	Package = M365Suite	●	●	●	●	○	●

Veeam Backup for Microsoft 365 License		Veeam ONE License					
		Rental	Subscription	Perpetual	Community	NFR	Evaluation
Rental	Package = M365	●	○	○	○	○	●
Evaluation	Package = M365Suite	●	●	●	●	●	●
Community	Package = M365Suite	○	●	●	○	●	●
NFR	Package = M365	○	○	○	○	○	○
	Package = M365Suite	○	○	○	●	●	●

Installing License

Veeam ONE license is provided during the product installation.

If you do not provide a license file during installation, you can provide it later:

1. Open Veeam ONE Client.

   For details, see section Accessing Veeam ONE Client of the Veeam ONE Monitoring Guide.

2. In the main menu, click **License**.
3. In the **License Information** window, navigate to the **License** tab and click **Install**.
4. Specify a path to the license file and click **Open**.
5. Select the **Update license automatically** check box to enable automatic license update and usage reporting.

   Automatic usage reporting implies sending license usage statistics to Veeam. For details, see Automatic Usage Reporting.

6. In the **License Information** window, click **Save**.

Viewing License Information

You can check details of the installed license in the **License Information** window.

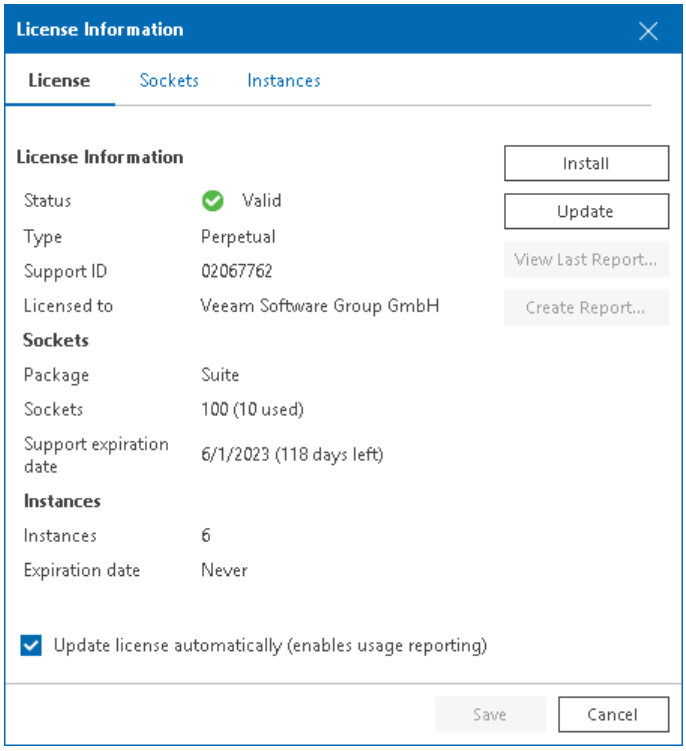
To access the **Licensed Information** window:

1. Open Veeam ONE Client.

   For details, see section Accessing Veeam ONE Client of the Veeam ONE Monitoring Guide.

2. In the main menu, click **License**.

   The **License Information** window will display license details.



License Information

The **License Information** section provides information about the current Veeam ONE license:

- **Status** – status of the installed license (*Valid*, *Valid (License key is about to expire)*, *Invalid*, *Expired (N days of grace period remaining)*, *Warning (License exceeded)*, *Not Installed*).
- **Type** – type of the installed license (*Perpetual*, *Subscription*, *Rental*, *Community*, *Evaluation*, *NFR*).
- **Licensed to** – name of the user or company to which the license was issued.
- **Expiration date** – date when the license will expire.
- **Package** – license package (*ONE*, *Suite*, *Essentials*).
- **Instances** – number of instances that can cover managed objects.
- [For *Rental* license only] **Points** – number of points that can cover managed objects.
- **Sockets** – number of sockets that the license covers.

- **Expiration date** — date when the license will expire.
- [For *Perpetual* license only] **Support expiration date** — date when product support will expire.
- **Support ID** — customer identification number required when contacting Veeam Technical Support.

License Usage

The **Sockets** and **Instances** tabs provide details on the number of currently used sockets, instances or points, and the number of managed objects with object multipliers for your license type.

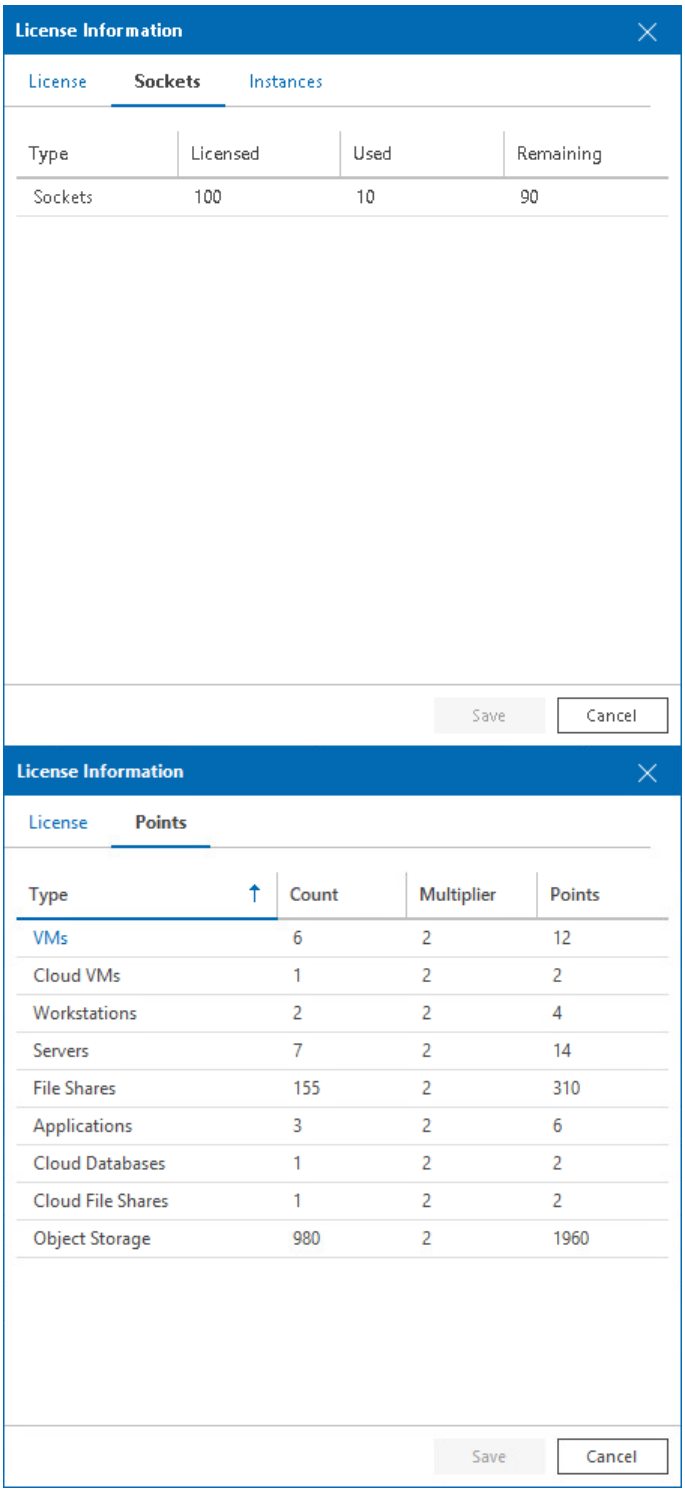
These tabs contain the following information:

- **Sockets** — number of licensed, used and remaining sockets on managed VMware vSphere and Microsoft Hyper-V hosts.
- [For *Rental* license only] **Used points** — number of points consumed by managed objects out of the total number of instances available in the license.
- **New** — number of objects that were discovered less than a month ago (within the current calendar month). For details on new objects, see Licensed Objects.
- **VMs** — number of managed VMs out of the total number of discovered VMs on managed VMware vSphere and Microsoft Hyper-V hosts and Veeam Backup & Replication servers.

  Click a link in the **Type** column to drill down to details on protected workloads.
- **Workstations** — number of managed Veeam Agents that run in *Workstation* mode and are managed by Veeam Backup & Replication servers connected to Veeam ONE.
- **Servers** — number of managed Veeam Agents that run in Server mode discovered and are managed by Veeam Backup & Replication servers connected to Veeam ONE.
- **File Shares** — number of managed data blocks (500 GB each) of file shares protected by Veeam Backup & Replication servers connected to Veeam ONE.
- **Cloud VMs** — number of Microsoft Azure VMs, Google Cloud VMs and AWS EC2 instances protected by Veeam Backup for Microsoft Azure, Veeam Backup for AWS and Veeam Backup for Google Cloud integrated with Veeam Backup & Replication servers that you connect to Veeam ONE.
- **Cloud File Shares** — number of AWS EFS and Microsoft Azure file shares protected by Veeam Backup for Microsoft Azure, Veeam Backup for AWS and Veeam Backup for Google Cloud integrated with Veeam Backup & Replication servers that you connect to Veeam ONE.
- **Cloud Databases** — number of Microsoft Azure SQL, AWS RDS, Google Cloud SQL databases protected by Veeam Backup for Microsoft Azure, Veeam Backup for AWS and Veeam Backup for Google Cloud integrated with Veeam Backup & Replication servers that you connect to Veeam ONE.
- [For *Rental* license only] **Microsoft 365 users** — number of users protected by Veeam Backup for Microsoft 365 and number of consumed instances.

  Click a link in the **Type** column to drill down to details on protected workloads.
- **Applications** — number of enterprise applications protected with Veeam Plug-ins for SAP HANA, Oracle RMAN, SAP on Oracle.

- **Object Storage** – number of managed data blocks (500 GB each) of Amazon S3, Azure Blob and S3 compatible storage data protected by Veeam Backup & Replication servers connected to Veeam ONE



Submitting License Usage Report

If you use a *Rental* license, you must submit a license usage report to Veeam every month. The license usage report reflects the maximum number of instances consumed by workloads that you were managing with Veeam ONE within the previous calendar month: VMs, file shares and Veeam Agents (*Workstation* and *Server*), cloud instances (cloud VMs, cloud databases and cloud file shares), enterprise applications, object storage and Microsoft 356 users.

There are two methods to submit a license usage report:

- You can submit a license usage report in Veeam ONE Client (recommended). For details, see Submitting License Usage Report in Veeam ONE Client.
- You can submit a license usage report manually by sending an email with a generated report to a Veeam sales representative. For details, see Submitting Offline License Usage Report.

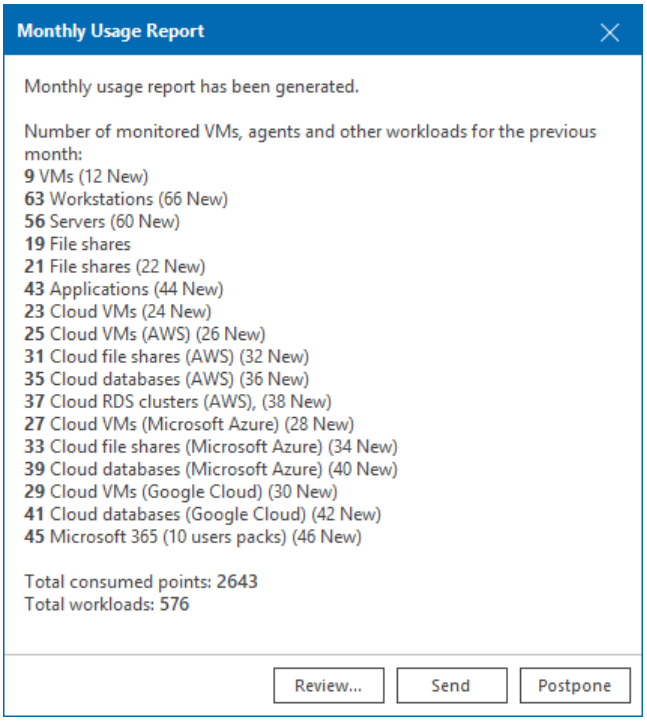
Submitting License Usage Report in Veeam ONE Client

If Veeam ONE server has access to Internet, you can submit a license usage report in Veeam ONE Client. When you submit a license usage report in Veeam ONE Client, Veeam ONE sends license usage statistics to the Veeam License Update Server.

This method is available only if license auto update is enabled. For details on automated license update, see Updating License.

License usage reporting is performed in the following way:

1. Veeam ONE collects statistics on the current license usage.
2. On the first day of the new month, Veeam ONE generates a license usage report based on the maximum number of managed objects in the previous month.
3. Veeam ONE informs you about the generated report with a notification window in Veeam ONE Client each time you access the console.



4. You can review the report, adjust it and send it to Veeam.

   If you do not send and save the report, on the sixth day of the month, Veeam ONE will save and send the report automatically. You can access the report on the Veeam ONE server, in the `%ProgramData%\Veeam\Licensing\Veeam ONE Report` folder.

To submit a license usage report in Veeam ONE Client:

1. Open Veeam ONE Client.

   For details, see section Accessing Veeam ONE Client of the Veeam ONE Monitoring Guide.

2. In the main menu, click **License**.

3. In the **License Information** window, click **Create Report**.

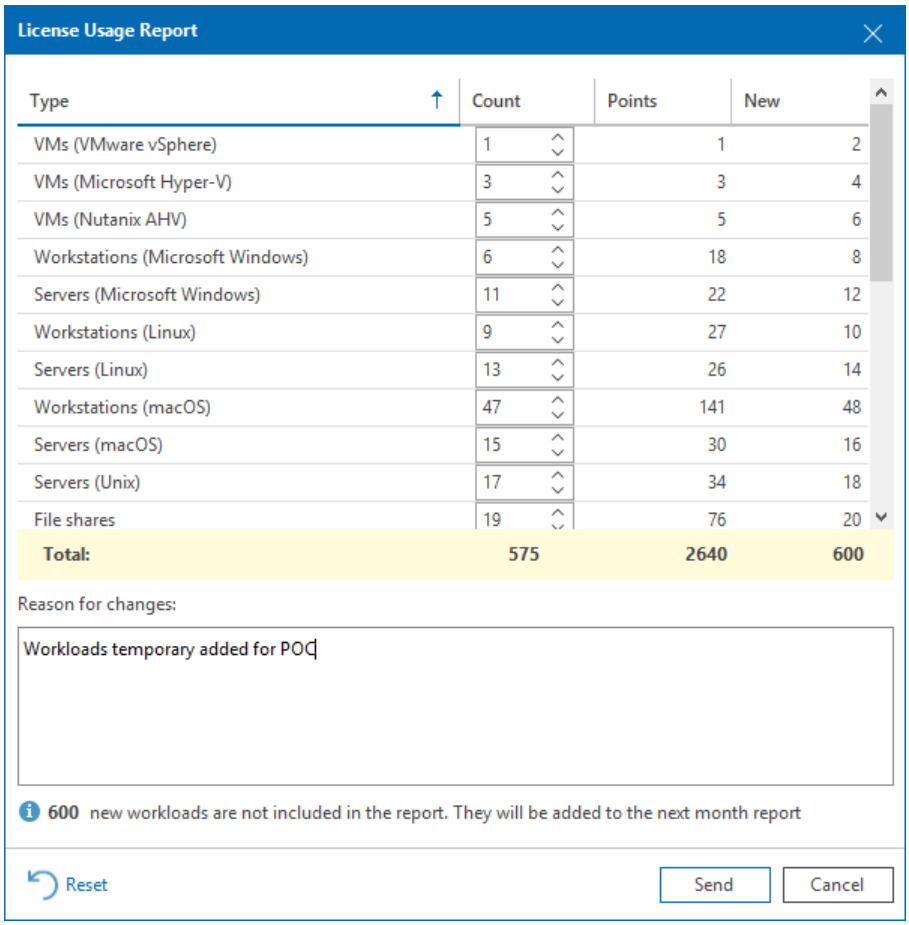
4. In the **License Usage Report** window, you can adjust the number of managed workloads before you submit the report.

5. If you have reduced the number of workloads, the **Reason for changes** field, specify a reason for reducing report statistics or any additional information.

6. Click **Send**.

   Veeam ONE will display a dialog box with the submission result.

7. Click **OK** to acknowledge the result and close the dialog box.



Submitting Offline License Usage Report

If Veeam ONE server does not have access to Internet or has connection problems, you can submit an offline license usage report. When you submit an offline license usage report, Veeam ONE generates a file with license usage statistics.

The report file can be generated in the `JSON`, `PDF` or `XLS` format. You must send a report in the `JSON` format to Veeam. You can save the report in the `PDF` or `XLS` formats for your own needs.

This method is available only if license auto update is disabled. For details, see Updating License.

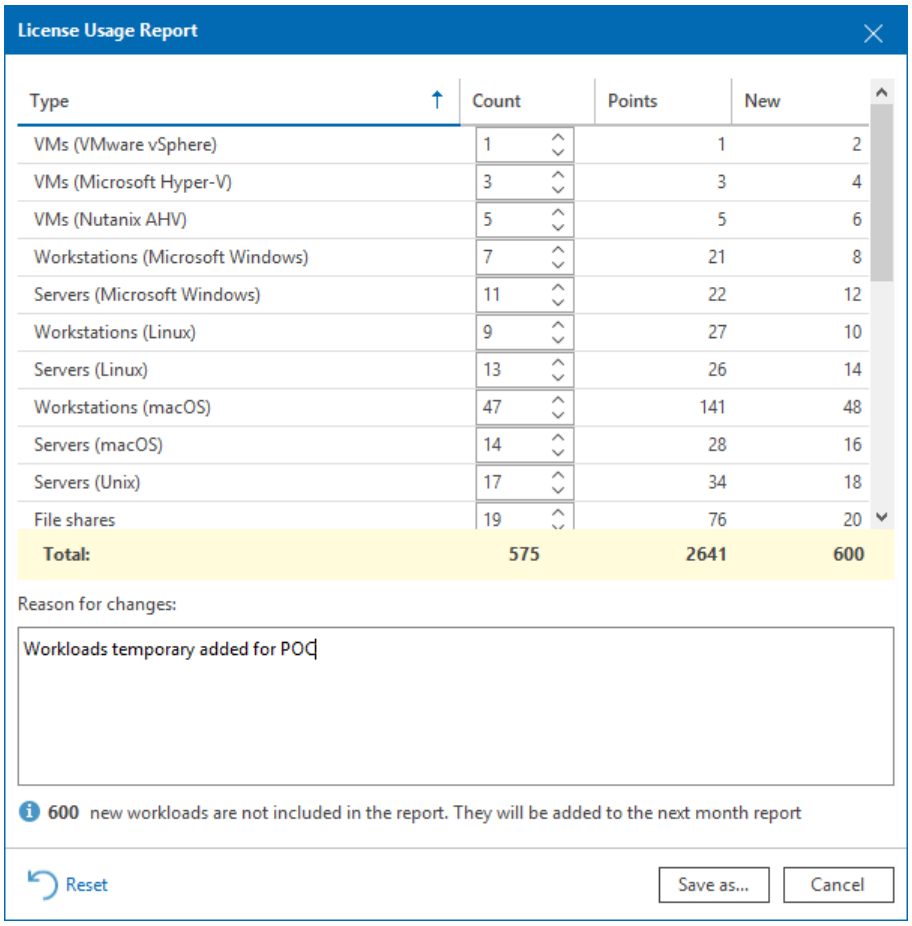
To submit an offline license usage report:

1. Open Veeam ONE Client.

   For details, see section Accessing Veeam ONE Client of the Client User Guide.

2. In the main menu, click **License**.
3. In the **License Information** window, click **Create Report**.
4. In the **License Usage Report** window, you can adjust the number of managed workloads before you submit the report.
5. If you have reduced the number of workloads, the **Reason for changes** field, specify a reason for reducing report statistics or any additional information.
6. Click **Save as** and choose a folder to which you want to save the report.
7. When the report is generated, Veeam ONE will display a dialog box notifying that the report was created. In the dialog box, click **Open folder** to navigate to the folder where the report resides.

8. Review the report and send it to a Veeam sales representative.



Updating License

When the license expires, you can update it from the Veeam licensing server. You can use the following methods to update Veeam ONE license:

- Update the license manually
- Update the license automatically

Updating License Manually

You can update the license from the Veeam License Update Server manually on demand. When you update the license manually, Veeam ONE connects to the Veeam License Update Server, downloads a new license from it (if the license is available), and installs it on the Veeam ONE server.

To update the license:

1. Open Veeam ONE Client.

   For details, see section Accessing Veeam ONE Client of the Veeam ONE Monitoring Guide.

2. In the main menu, click **License**.
3. In the **License Information** window, navigate to the **License** tab.
4. Click **Update**.

   Veeam ONE will connect to the Veeam licensing server, download the new license from it (if available), install it on the Veeam ONE server, and display a dialog box with the license update result.

5. Click **Save** to acknowledge the result and close the dialog box.

Updating License Automatically

You can instruct Veeam ONE to update the license automatically. License auto-update is available for all types of licenses and is mandatory for *Free* licenses (*Community Edition*, *Evaluation*, *NFR*). Automatic license update removes the need to download and install the license manually each time when you purchase the license extension. If the automatic update option is enabled, Veeam ONE proactively communicates with the Veeam License Update Server to obtain and install a new license before the current license expires.

How Automatic License Update Works

To update the license automatically, Veeam ONE performs the following actions:

1. After you enable automatic license update, Veeam ONE starts sending requests to the Veeam License Update Server on the web (one.butler.veeam.com) and checks if a new license key is available. Veeam ONE sends requests once a week. Communication with the Veeam License Update Server is performed over the HTTPS protocol.
2. Seven days before the expiration date of the current license, Veeam ONE starts sending requests once a day.
3. When a new license key becomes available, Veeam ONE automatically downloads it and installs on the Veeam ONE server.

Automatic license update can complete with the following results:

- **Operation is successful**. A new license key is successfully generated, downloaded and installed on the Veeam ONE server.
- **A new license is not required**. The currently installed license key does not need to be updated.
- **Veeam License Update Server has failed to generate a new license**. Such situation can occur due to an error on the Veeam License Update Server side.
- **Veeam ONE has received an invalid answer**. Such situation can occur due to connectivity issues between the Veeam License Update Server and Veeam ONE server.

Automatic Update Retries

If Veeam ONE fails to update the license, it triggers the *Veeam ONE license update failure* alarm, and retries to update the license.

Veeam ONE retries to update the license key in the following way:

- If Veeam ONE fails to establish a connection to the Veeam License Update Server, retry takes place every 60 minutes.
- If Veeam ONE establishes a connection but there occurs a general license key generation error, the retry takes place every 24 hours.

The retry period ends one month after the license expiration date or the support expiration date (whichever is earlier). The retry period is equal to the number of days in the month of license expiration. For example, if the license expires in January, the retry period will be 31 days. If the license expires in April, the retry period will be 30 days.

Enabling Automatic License Update

By default, automatic license update is disabled. To enable automatic license updates:

1. Open Veeam ONE Client.

   For details, see section Accessing Veeam ONE Client of the Veeam ONE Monitoring Guide.
2. In the main menu, click **License**.
3. In the **License Information** window, on the **License** tab, select the **Update license automatically (enables usage reporting)** check box.
4. Click **Save**.

NOTE:

- Enabling license auto update activates Automatic Usage Reporting. You cannot use license auto update without automatic usage reporting.
- License auto-update is enabled by default for *Free* licenses (*Community Edition*, *Evaluation*, *NFR*) and cannot be disabled.

Automatic Usage Reporting

When license auto update is enabled, Veeam ONE additionally performs automatic usage reporting.

As part of reporting, Veeam ONE collects statistics on the current license usage and sends it periodically to the Veeam License Update Server. The report provides information about the contract ID, product installation ID, and the maximum number of protected workloads over the current week. The process runs in the background mode, once a week at a random time and day.

The collected data does not include information on Veeam ONE usage by any individual person identifiable for Veeam, or any data gathered by Veeam ONE.

The collected data allows our back-end system to automatically approve your monthly usage reports as long as they do not deviate from the high watermark value significantly. This helps to keep our report processing costs low, thus allowing us to maintain low rental prices for our solution. Veeam may also use collected data for any other internal business purposes it deems appropriate, including (but not limited to) evaluation, improvement and optimization of Veeam licensing models. For details on license limits, see Exceeding License Limit.

By enabling license auto update you agree with collection, transmission and use of the reporting data. You must not enable license auto update in case you do not agree with such collection, transmission and use.

License Expiration

Veeam ONE license period is set in accordance with the chosen licensing program.

For *Subscription* and *Rental* licenses, Veeam ONE offers a grace period after the license expiration date. This mechanism ensures a smooth license update and provides sufficient time to install a new license file.

During the grace period, Veeam ONE keeps working in a full-version mode. The license status in the **License Information** window will appear as *Expired (<number> days of grace period remaining)*.

You must update your license before the end of the grace period. If you do not update the license until the end of the grace period, Veeam ONE will switch to the community mode.

If support period is expired for a *Perpetual* license, the product will continue to work in a full-version mode. However, you will not be able to upgrade Veeam ONE and install updates and patches.

The duration of the grace period is defined by the type of license.

License Type	Grace Period
Perpetual license	Not applicable
Subscription license	30 days
Rental license	60 days

Exceeding License Limit

In some situations, the number of actually managed objects may exceed the license limit. For example, this may happen when some VMs or hosts are temporarily managed for testing or POC.

For per-instance licenses, Veeam ONE allows you to manage more objects than covered by the number of instances specified in the license. On the first month, the exceeding limit is equal to the number of instances the license covers. For example, if your license covers 500 instances, Veeam ONE allows you to manage objects that consume up to 1000 instances.

Starting from the second month, the exceeding limit varies according to the license type and state of license auto update setting:

License Type	Auto Update Enabled*	Auto Update Disabled
Subscription Perpetual (per instance)	Up to 20 instances or 20% of the total instance count (whichever number is greater)	Up to 10 instances or 10% of the total instance count (whichever number is greater)
Rental	Up to 20 instances or 20% of the total instance count (whichever number is greater)	Up to 20 instances or 20% of the total instance count (whichever number is greater)

*and you have successfully submitted license usage report during the last 30 days.

If the license limit is exceeded by no more than the specified percentage or number, Veeam ONE continues to manage all objects.

If the license limit is exceeded by more than the specified percentage or number, all objects exceeding the licensed number and the allowed increase are excluded from monitoring and reporting. To determine what objects to manage, Veeam ONE uses the last-in first-out method (LIFO): objects that were discovered last are removed first from the monitoring and reporting scope.

An increase in the number of managed objects up to the specified percentage is allowed only for a limited period of time. The duration of this grace period is equal to the duration of the license key.

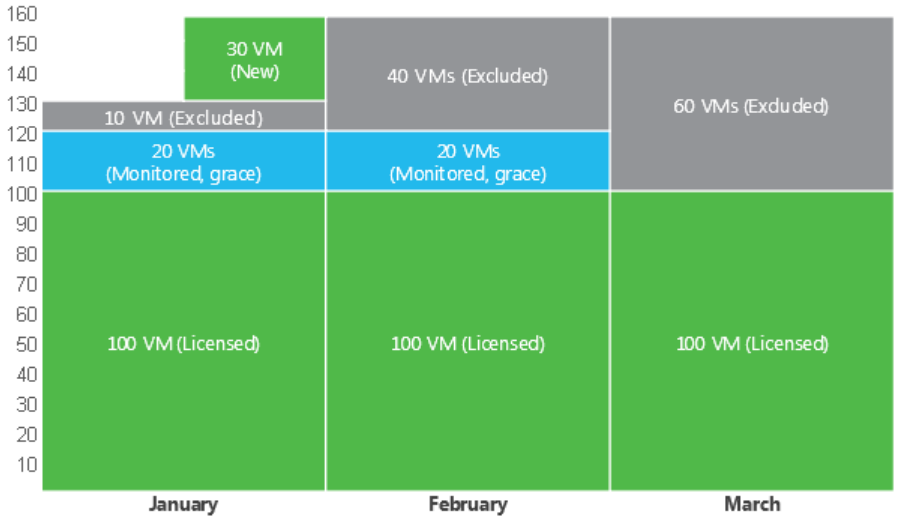
By the end of the grace period, you must update the existing license or decrease the number of managed objects. Otherwise, Veeam ONE will exclude from monitoring and reporting objects that exceed the license limit. VMs are excluded with the help of an automatic exclusion rule that is created by Veeam ONE. You can review VMs covered by this rule in Veeam ONE server settings. For details, see Choosing VMs and VM Containers to Monitor and Report On. If you exceed the number of monitored computers with installed Veeam Agents, file shares and VMs protected on monitored Veeam Backup & Replication servers, Veeam ONE will not exclude any objects from monitoring or reporting. For objects that exceed the license limit, Web Client will generate Veeam Backup & Replication reports with the Veeam watermark.

In addition to managing objects that exceed the license limit by no more than the specified percentage, Veeam ONE allows you to monitor any number of new objects (that is, objects that are monitored for the first time in the current month). Exceed by new objects is supported for *Rental* licenses only.

Consider the following example. Veeam ONE uses a *Rental* license with the license auto update disabled and the expiration date set to 60 days from the license issue date. At the beginning of January the number of VMs is 130, while a license covers 100 VMs. The period for exceeding the license limit is 60 days. Within the first 60 days (in January and February), Veeam ONE will manage 100 + 20 VMs that were discovered first (license limit + 20%). 10 VMs that were discovered last will be excluded from monitoring and reporting. In addition, in the middle of January, Veeam ONE discovers 30 new VMs. Veeam ONE will manage these VMs until the end of the month.

If the license is not updated and the license limit is not increased, Veeam ONE will exclude from monitoring and reporting:

- 30 VMs that exceed the license limit
- 30 VMs that were discovered in January



Exceeding Sockets Limit

For per-socket licenses, Veeam ONE does not offer any grace period. If the number of sockets exceeds the license limit, Veeam ONE will exclude from monitoring and reporting hosts above the license limit.

Deployment Planning and Preparation

Before installing Veeam ONE, check supported virtualization platforms, system requirements, permissions and network ports used for data transmission.

Supported Virtualization Platforms

Veeam ONE supports the following virtualization platforms:

VMware vSphere Environment

Specification	Requirement
Platforms	• VMware vSphere 8.0 (up to 8.0 U2) • VMware vSphere 7.0 (up to 7.0 U3) • VMware vSphere 6.x • VMware Cloud on AWS
Software	• vCenter Server 8.0 (optional*) (up to 8.0 U2) • vCenter Server 7.0 (optional*) (up to 7.0 U3) • vCenter Server 6.x (optional*) • Cloud Director 10.1 (up to 10.5)
Hosts	• ESXi 8.0 • ESXi 7.0 (up to 7.0 U3) • ESXi 6.x **Note:** Free versions of VMware vSphere ESXi are supported.

* Adding VMware vSphere infrastructure using vCenter Server is not mandatory.

Microsoft Hyper-V Environment

Specification	Requirement
Platforms	• Windows Server 2022 • Windows Server 2019 (including 1809) • Windows Server 2016 (including 1709 and 1803) • Windows Server 2012 R2 • Windows Server 2012
Software	• Microsoft System Center 2022 Virtual Machine Manager (optional*) • Microsoft System Center 2019 Virtual Machine Manager (optional*) • Microsoft System Center 2016 Virtual Machine Manager (optional*) • Microsoft System Center 2012 R2 Virtual Machine Manager (optional*) • Microsoft System Center 2012 SP1 Virtual Machine Manager (optional*) **Note:** Semi-Annual Channel (SAC) releases are supported.

Specification	Requirement
Hosts	• Windows Server Hyper-V 2022 • Windows Server Hyper-V 2019 • Windows Server Hyper-V 2016 • Windows Server Hyper-V 2012 R2 • Windows Server Hyper-V 2012 **Notes:** • Semi-Annual Channel (SAC) releases are supported. • Free versions of Microsoft Windows Server Hyper-V and Microsoft Hyper-V Server are supported.

* Adding Microsoft Hyper-V infrastructure using SCVMM is not mandatory.

Integration with VMware Cloud Director

Veeam ONE offers monitoring and reporting capabilities for VMware Cloud Director version 10.1, 10.2, 10.3, 10.4 and 10.5.

Integration with Veeam Backup & Replication

Veeam ONE offers monitoring and reporting capabilities for the following versions of Veeam Backup & Replication and Veeam Backup Enterprise Manager:

- Veeam Backup & Replication 12.1 (recommended)
- Veeam Backup & Replication 12 or later builds
- Veeam Backup & Replication 11 or later builds (compatible)
- Veeam Backup & Replication 10a or later builds (compatible)
- Veeam Backup for Microsoft 365 v7 and later builds

Considerations and Limitations

Consider the following limitations when integrating Veeam Backup & Replication with Veeam ONE:

- Monitoring and reporting capabilities depend on licenses installed in Veeam Backup & Replication and Veeam ONE. For details on license compatibility, see Compatibility with Veeam Backup & Replication Licenses.
- Infrastructure topology view in Veeam ONE and Veeam Backup & Replication must match. Otherwise, Veeam ONE Web Client might show invalid data for Veeam Backup & Replication reports and dashboards.
- If you plan to install Veeam ONE agent on the Veeam Backup & Replication server, you must disable MFA for the account under which Veeam ONE agent connects to Veeam Backup & Replication. For details, see section Disabling MFA for Service Accounts of the Veeam Backup & Replication User Guide.
- It is recommended to install Veeam ONE agent to improve data collection performance in large-scale Veeam Backup & Replication infrastructures. For details on Veeam ONE agent, see Integration with Veeam Backup & Replication.
- Support for Veeam ONE dashboard integration with Veeam Backup & Replication is available only with Veeam Backup & Replication versions 12.1 and above.
- If you plan to move Veeam Backup & Replication servers to a different Veeam ONE instance and delete from the current instance, the Veeam Backup & Replication servers become unregistered for all integrations. To solve this, clear the **Provide access to embedded dashboards for added backup servers** check box in **Connection Settings** and select it in the new Veeam ONE instance. For details, see Changing Server Connection Settings.

Integration with Veeam Backup for Microsoft 365

Veeam ONE offers monitoring and reporting capabilities for Veeam Backup for Microsoft 365 version 7 and later builds.

NOTE:

- Before you connect a Veeam Backup for Microsoft 365 server to Veeam ONE Client check that product licenses are compatible. For details on license compatibility, see Compatibility with Veeam Backup for Microsoft 365 Licenses.
- Additionally, before you can connect a Veeam Backup for Microsoft 365 server to Veeam ONE, REST API must be enabled. For details on on REST API, see Configuring REST API and Restore Portal on Separate Machine.

System Requirements

Before you deploy Veeam ONE, make sure that your environment meets the necessary system requirements.

All-in-One Deployment

If you plan to use the all-in-one deployment scenario, the machine on which you plan to deploy Veeam ONE must meet the following hardware requirements:

- **CPU:** x86-x64 processor, 4 cores minimum*
- **Memory:** 8 GB RAM minimum, 16 GB RAM recommended. Using modern high clock speed memory (DDR3 and higher) and an independent database server improves data processing performance.*
- **Hard Disk Space:** 50 GB for product operation and sufficient disk space for Microsoft SQL Server and Veeam ONE database. Use the Veeam ONE Database Calculator to size application data.

*Regardless of the number of protected workloads, for every connected Veeam Backup & Replication server, additional 0.03 vCPU core and 60 MB RAM are required.

Check OS and software requirements for the following Veeam ONE components:

Veeam ONE Server

Specification	Requirement
OS	Only 64-bit versions of the following operating systems are supported: • Microsoft Windows Server 2022 • Microsoft Windows Server 2019 • Microsoft Windows Server 2016 • Microsoft Windows 11 (Professional and Enterprise editions) • Microsoft Windows 10 version 1909 and LTS builds (Professional and Enterprise editions) • Microsoft Windows Server 2012 R2 • Microsoft Windows Server 2012 **Note:** Semi-Annual Channel (SAC) releases are supported.

Specification	Requirement
Software	The following components are included in the Veeam ONE setup package and can be installed automatically: • Microsoft .NET Framework 4.7.2 • Microsoft Windows Desktop Runtime 6.0.24 • Microsoft NET Core Shared Framework 6.0.24 • Microsoft OLE DB Driver for SQL Server 18.6.6.0 • Microsoft System CLR Types for SQL Server 2014 • Microsoft SQL Server 2014 Management Objects • Microsoft XML 6.0 Parser and SDK • Microsoft Universal C Runtime *Requires latest Veeam ONE Cumulative Patch (build 12.0.1.2591 or later) To connect SCVMM servers to Veeam ONE, the following software is required: • System Center 2022 Virtual Machine Manager console (for connecting SCVMM 2022 servers) • System Center 2019 Virtual Machine Manager console (for connecting SCVMM 2019 servers) • System Center 2016 Virtual Machine Manager console (for connecting SCVMM 2016 servers) • System Center 2012 R2 Virtual Machine Manager console (for connecting SCVMM 2012 R2 servers) • System Center 2012 Virtual Machine Manager console (for connecting SCVMM 2012 servers) • Microsoft PowerShell 3.0 (required for SCVMM 2012, SCVMM 2012 R2, SCVMM 2016, and SCVMM 2019 consoles) Be sure to install the same versions of the Admin UI and the SCVMM Server, and to update both components to the same update version.
Other	• Windows Management Instrumentation service must be enabled. • File and Print Sharing service must be enabled.

Microsoft SQL Server for Veeam ONE

Specification	Requirement
Software	**Microsoft SQL Server (Full and Express Editions):** • Microsoft SQL Server 2022 • Microsoft SQL Server 2019 • Microsoft SQL Server 2017 (Microsoft SQL Server 2017 without cumulative updates Express edition is included in Veeam ONE setup) • Microsoft SQL Server 2016 • Microsoft SQL Server 2014 • Microsoft SQL Server 2012 (Microsoft SQL Server 2012 SP14 Express edition is included in Veeam ONE setup) **Reporting Services (optional):** • Microsoft SQL Server Reporting Services 2022 • Microsoft SQL Server Reporting Services 2019 • Microsoft SQL Server Reporting Services 2017 • Microsoft SQL Server Reporting Services 2016 • Microsoft SQL Server Reporting Services 2014 • Microsoft SQL Server Reporting Services 2012

NOTE:

- For production deployment of Veeam ONE, it is recommended to use Microsoft SQL Server Standard Edition or higher.
- For large-scale deployments with, it is recommended to use Microsoft SQL Server Standard Edition or higher. For details on large-scale deployment recommendations, see Sizing and Scalability Best Practices.
- For production deployment of Veeam ONE, it is recommended to use Microsoft SQL Server Reporting Services Standard Edition or higher. Note that if you use Microsoft SQL Server Reporting Services Developer, Web or Express Editions, Veeam ONE functionality may be limited.
- Ensure you have sufficient space on disk for Veeam ONE database. The database can quickly grow in size due to a large amount of collected data, or because of Microsoft SQL Server configuration. For details, see KB2210.
- If you choose to host Veeam ONE database on Microsoft SQL Server Express, be informed there is a 10 GB database size limitation for this edition. For details, see Editions and Supported Features for SQL Server.
- You can run Veeam ONE database in Microsoft SQL Server Always ON availability group. For details, see KB2312.
- In order for the Veeam ONE database to be added to the Always ON Availability Group (AOAG), its recovery model must be switched to *Full* mode. Consequently, the database begins generating transaction logs that must be managed because Veeam ONE is designed to operate with a *Simple* recovery model database and does not truncate its transaction logs.

Veeam ONE Web Services

Specification	Requirement
Hardware	**CPU**: x86-x64 processor (minimum 2 cores). Using faster multi-core processors improves data processing performance. **Memory**: 2 GB RAM (minimum). Using faster memory (DDR3 and higher) improves data processing performance.
OS	Only 64-bit versions of the following operating systems are supported: • Microsoft Windows Server 2022 • Microsoft Windows Server 2019 • Microsoft Windows Server 2016 • Microsoft Windows 11 (Professional and Enterprise editions) • Microsoft Windows 10 version 1909 and LTS builds (Professional and Enterprise editions) • Microsoft Windows Server 2012 R2 • Microsoft Windows Server 2012 **Note:** Semi-Annual Channel (SAC) releases are supported.
Software	The following components are included in the Veeam ONE setup package and can be installed automatically: • Microsoft .NET Framework 4.7.2 • Microsoft Internet Information Services (IIS) 7.0 or later • Microsoft System CLR Types for SQL Server 2014 • Microsoft SQL Server 2014 Management Objects • Microsoft Application Request Routing 3.0 • IIS URL Rewrite Module 2.1 • Microsoft Universal C Runtime

Veeam ONE Client

Specification	Requirement
OS	Only 64-bit versions of the following operating systems are supported: • Microsoft Windows Server 2022 • Microsoft Windows Server 2019 • Microsoft Windows Server 2016 • Microsoft Windows Server 2012 R2 • Microsoft Windows Server 2012 • Microsoft Windows 11 (Professional and Enterprise editions) • Microsoft Windows 10 version 1909 and LTS builds (Professional and Enterprise editions) **Note:** Semi-Annual Channel (SAC) releases are supported.
Software	• Microsoft Windows Desktop Runtime 6.0.24 • Microsoft Core XML 6.0 Parser and SDK • Microsoft Windows Installer 4.5

Veeam ONE Web Client

Specification	Requirement
Software	• Microsoft Edge 87.0.664.75, Google Chrome 87.0.4280.141, Mozilla Firefox 84.0.2, or later versions. The browser must have JavaScript enabled. Microsoft Edge Legacy is not supported. • Microsoft Office 2010, 2013, 2016, 2019, or Microsoft Office 365 • Microsoft Visio 2010, 2013, 2016, 2019 • Any up-to-date PDF viewer • 1280x720 minimum screen resolution.

Custom Deployment

If you plan to use the custom deployment scenario, the machines on which you plan to deploy Veeam ONE components must be sized depending on the managed workloads. For details on hardware recommendations for custom deployments, see System Requirements for Large-Scale Deployment.

Limitations

You cannot install the following Veeam ONE components on a Domain Controller: Veeam ONE Server, Veeam ONE Web Services, Veeam ONE Database, Veeam ONE Agent.

Connection Settings

To ensure that Veeam ONE can update the license and Veeam Intelligent Diagnostics signatures and send license usage statistics to the Veeam licensing server, check that:

- The machine with Veeam ONE Server component is connected to the Internet.
- The firewall on the machine hosting Veeam ONE Server component allows inbound and outbound HTTPS traffic over the port 443.
- [If you connect to the Internet through a proxy server] `winhttp` proxy settings are properly configured on the machine hosting Veeam ONE Server component.
- TLS 1.2 must be enabled on the machine hosting Veeam ONE Server component.

Permissions

This section describes privileges required for the proper operation of Veeam ONE.

Connection to Veeam Backup & Replication Servers

The account used to connect Veeam Backup & Replication or Veeam Backup Enterprise Manager servers must:

- Have the **Veeam Backup Administrator** role assigned.

  This role must be assigned to the account on the machine that run Veeam Backup & Replication. If you connect Veeam Backup Enterprise Manager, the account must have this role assigned on all underlying Veeam Backup & Replication servers.

- Be a member of the **Performance Monitor Users** and **Event Log Readers** security groups.

  These permissions must be granted to the account on machines that run:

  - Veeam Backup & Replication
  - Veeam Backup Enterprise Manager
  - Backup proxy, backup repository (Windows-based), WAN Accelerator, tape server and cloud gateway components (required to collect performance data from these servers)

- Have permissions to remotely access WMI.

  This includes remote access, activation and launching the DCOM application of WMI, and remote access to the root WMI namespace and sub-namespaces. For details on granting these permissions, see Configuring Permissions to Remotely Access WMI.

  This permission must be granted to the account on machines that run:

  - Veeam Backup & Replication
  - Veeam Backup Enterprise Manager
  - Backup proxy, backup repository (Windows-based), WAN Accelerator, tape server and cloud gateway components (required to collect performance data from these servers)

NOTE:

You must use the account with local Administrator permissions in the following cases:

- If you plan to install Veeam ONE agent on Veeam Backup & Replication server.

  You must also disable MFA for the account under which Veeam ONE agent connects to Veeam Backup & Replication. For details, see section Disabling MFA for Service Accounts of the Veeam Backup & Replication User Guide.
- If machines that run Veeam ONE server and Veeam Backup & Replication server belong to different domains or workgroups.

Connection to Veeam Backup for Microsoft 365 Servers

The account used to connect Veeam Backup for Microsoft 365 servers must have *Local Administrator* permissions on the machine where Veeam Backup for Microsoft 365 server is installed.

Connection to Virtualization Servers

This section describes permissions to accounts used to connect virtualization servers.

VMware vSphere Servers

The account used to connect vCenter Server and ESXi hosts must have the **Read Only** role and the following additional privileges:

- **Datastore.Browse datastore**

  Required for collecting datastore details

- **Global.Global tag** (not required VMware vSphere version 6.5 or later)

  Required for running remediation actions

- **Global.Licenses**

  Required for collecting license information

- **Host.CIM.CIM Interaction**

  Required for gathering of ESXi host hardware data

- **Host.Configuration.Connection**

  Required for gathering of ESXi host hardware data

- **Virtual machine.Interaction.Answer question**

  Required for using VM Console and viewing snapshot information

- **Virtual machine.Interaction.Console interaction**

  Required for accessing VM console from Veeam ONE Client.

- **Virtual machine.Snapshot management.Remove Snapshot**

  Required for running remediation actions

- vSphere Tagging Privileges:
  - **vSphere Tagging.Assign or Unassign vSphere Tag**
  - **vSphere Tagging.Create vSphere Tag**
  - **vSphere Tagging.Create vSphere Tag Category**
  - **vSphere Tagging.Delete vSphere Tag**
  - **vSphere Tagging.Delete vSphere Tag Category**
  - **vSphere Tagging.Assign or Unassign vSphere Tag on Object**

    Required for collecting and updating tags on the vCenter Server side. The privileges must be assigned at the vCenter Server level.

> **NOTE:**
>
> Names of privileges are provided for the latest supported version of VMware vSphere, and may vary for different platform versions.

Microsoft Hyper-V Hosts and Clusters

The account used to connect standalone Microsoft Hyper-V hosts must:

- Be a member of the **Hyper-V Administrators** and **Performance Monitor Users** security groups.
- Have permissions to remotely access WMI on Microsoft Hyper-V hosts.

  This includes remote access, activation and launching the DCOM application of WMI, and remote access to the root WMI namespace and sub-namespaces. For details on granting these permissions, see Configuring Permissions to Remotely Access WMI.

The account used to connect Microsoft Hyper-V clusters must have local Administrator permissions on these clusters.

Microsoft SCVMM

The account used to connect an SCVMM Server must have in SCVMM an assigned user role that is based on the **Read-Only Administrator** profile.

To monitor clusters and hosts managed by SCVMM, the minimal required permissions for these hosts and clusters must be granted to the same account. For details, see Microsoft Hyper-V Hosts and Clusters.

Connection to VMware Cloud Director Servers

The account used for connecting to VMware Cloud Director must have *system administrator* privileges.

Veeam ONE Service Account

The service account must have *Local Administrator* permissions on the machine where Veeam ONE is installed.

> **NOTE:**
>
> You cannot use the *Local System* account as the service account during product installation. If you want to use *Local System* to run Veeam ONE services you can configure it later. For details, see Changing Veeam ONE Service Account.

Connection to Microsoft SQL Server

The account used to connect to the Microsoft SQL Server hosting the Veeam ONE database during installation must have the following permissions:

- *Public* role — default permissions for SQL users
- *CREATE ANY DATABASE* permissions — required for database creation during setup
- *db_owner* role on the Veeam ONE database — required for communication of Veeam ONE services with the database
- *db_datareader* permissions on the **master** database — required to verify that only one product installation writes data to the database
- *public*, *db_datareader*, *SQLAgentUserRole* permissions on the **msdb** database — required for setup and database index optimization
- [For Always-On Availability Groups] *VIEW SERVER STATE*, *VIEW ANY DEFINITION* permissions — required to check database existence and to verify that Veeam ONE will write data to the primary replica of the database

After installation, the account used for upgrades and communication of Veeam ONE services with Veeam ONE database must have the following permissions:

- *Public* role (default permissions)
- *db_owner* role on the Veeam ONE database
- *db_datareader* permissions on the **master** database
- [For Always-On Availability Groups] *VIEW SERVER STATE*, *VIEW ANY DEFINITION* permissions
- [Optional]* *public, db_datareader*, *SQLAgentUserRole* permissions on the **msdb** database

*Required for database index optimization. Using the account without these permissions may slow down database performance.

Connection to VM Guest OS

The account used to collect data from guest OSes of Windows VMs, must have the following permissions:

- **Local Administrator** on the guest OS
- **List folder contents** on all guest OS volumes

> **NOTE:**
>
> To collect data from non-domain Windows VMs, or VMs with an unelevated *local Administrator* account, you must complete additional configuration steps to allow Veeam ONE perform data collection. For details, see Connection Under UAC.

Connection to ServiceNow

The account used to connect to ServiceNow instance must have the following permissions.

- **Read** permissions on the following tables:
  - */api/now/table/sys_user*

    Required to check user availability on the ServiceNow side.
  - */api/now/table/sys_user_group*

    Required to check the availability of the assignment group on the ServiceNow side.
  - */api/now/table/sys_choice*

    Required to check the availability of the close code on the ServiceNow side.
  - */api/now/table/incident*
- **Create** permissions on the following tables:
  - */api/now/table/sys_user*

    Required to create a Veeam ONE caller in ServiceNow.
  - */api/now/table/sys_user_group*

    Required to create a Veeam ONE Support group in ServiceNow.
  - */api/now/table/incident table*
- **Write** permissions on the following tables:
  - */api/now/table/incident*

Configuring Permissions to Remotely Access WMI

Veeam ONE collects data from Microsoft Windows machines using WMI. To make sure that Veeam ONE can collect data using WMI, the account under which you connect Microsoft Windows machines must have permissions to remotely access WMI.

Permissions to access WMI remotely must be granted on:

- Microsoft Hyper-V hosts and clusters
- Veeam Backup & Replication servers

To configure permissions for remote access to WMI:

1. Grant permissions to remotely access root WMI namespace and sub-namespaces.
2. Grant remote access, launch and activation permissions for DCOM application.
3. Grant remote launch and activation permissions for WMI.

> **TIP:**
>
> Instead of performing steps 2 and 3, you can add the user account to the Distributed COM Users group on target machines.

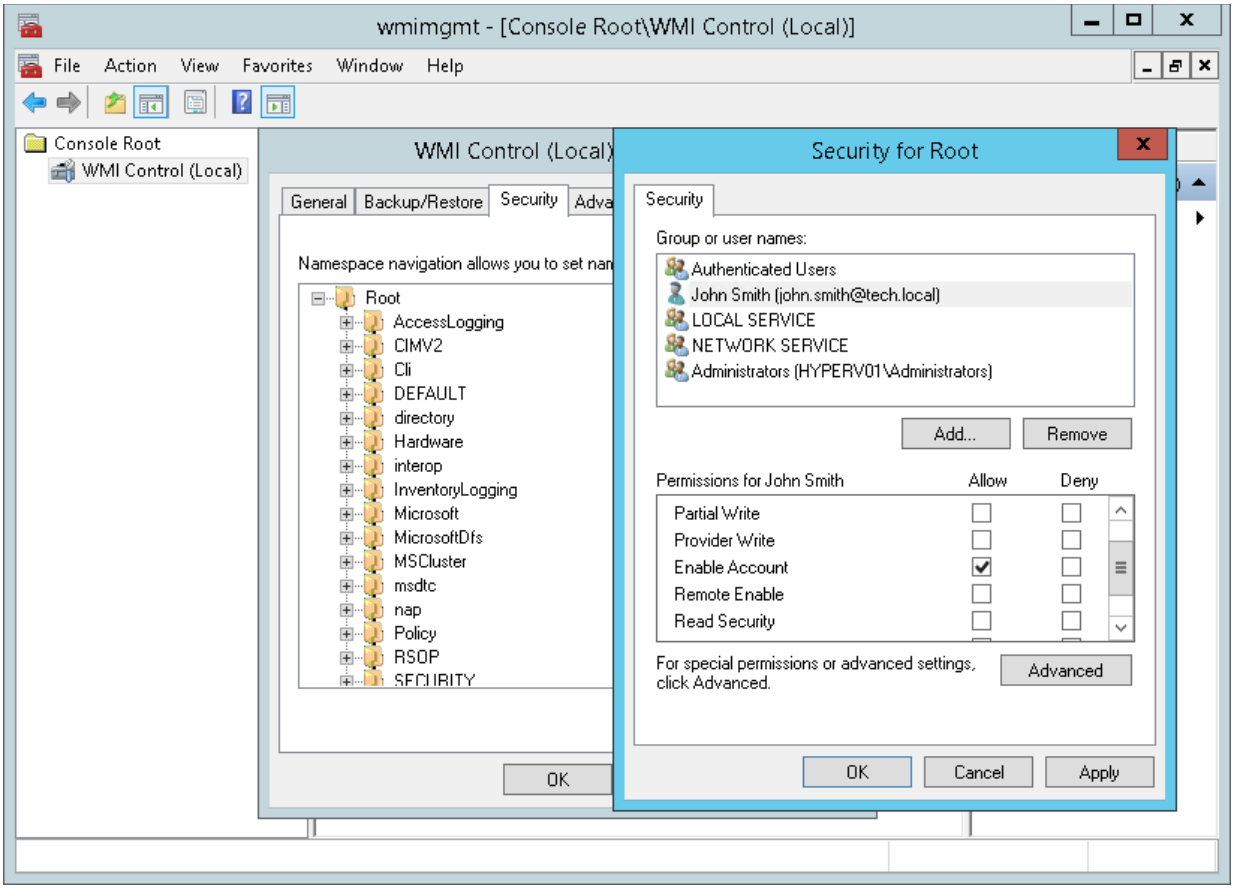
Step 1. Grant Permissions to Remotely Access Root WMI Namespace and Sub-Namespaces

To grant to an account permissions for remote access to WMI:

1. Log on to a target Microsoft Windows machine as an Administrator.
2. Open the WMI Control Console.

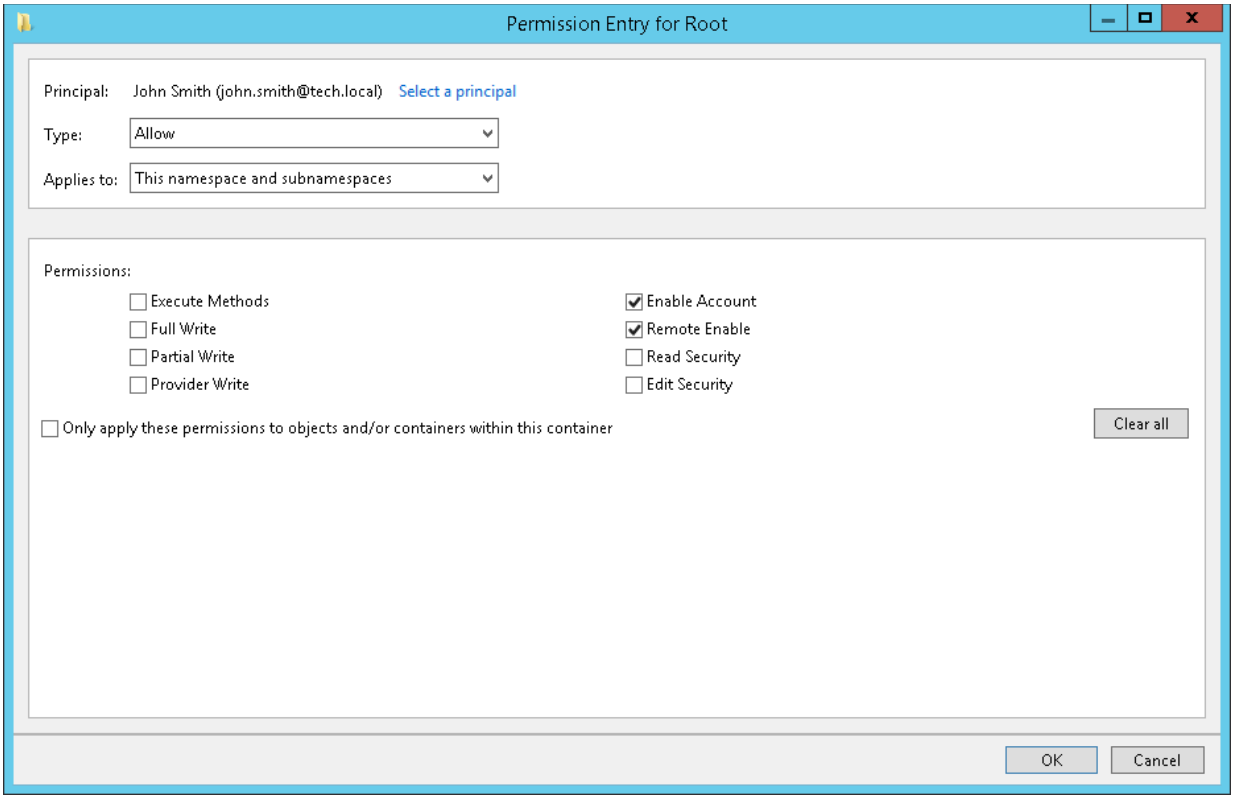
   To do so, choose **Start** > **Run**, type `wmimgmt.msc` and click **OK**.
3. Right-click **WMI Control** and select **Properties**.
4. In the **WMI Control Properties** window, open the **Security** tab.
5. On the **Security** tab, select the **Root** namespace.
6. Click **Security**.

7. In the **Security for Root** window, add the necessary user account.



8. Click **Advanced**.
9. In the **Advanced Security Settings for Root** window, select the user account and click **Edit**.
10. In the **Permission Entry for Root** window, do the following:
    a. In the **Applies to** list, select **This namespace and subnamespaces**.
    b. In the **Permissions** section, select **Enable Account** and **Remote Enable**.

c. Click **OK**.



11. In the **Advanced Security Settings for Root** window, click **OK**.
12. In the **Security for Root** window, click **OK**.
13. In the **WMI Control Properties** window, click **OK**.
14. Close the WMI Control Console.

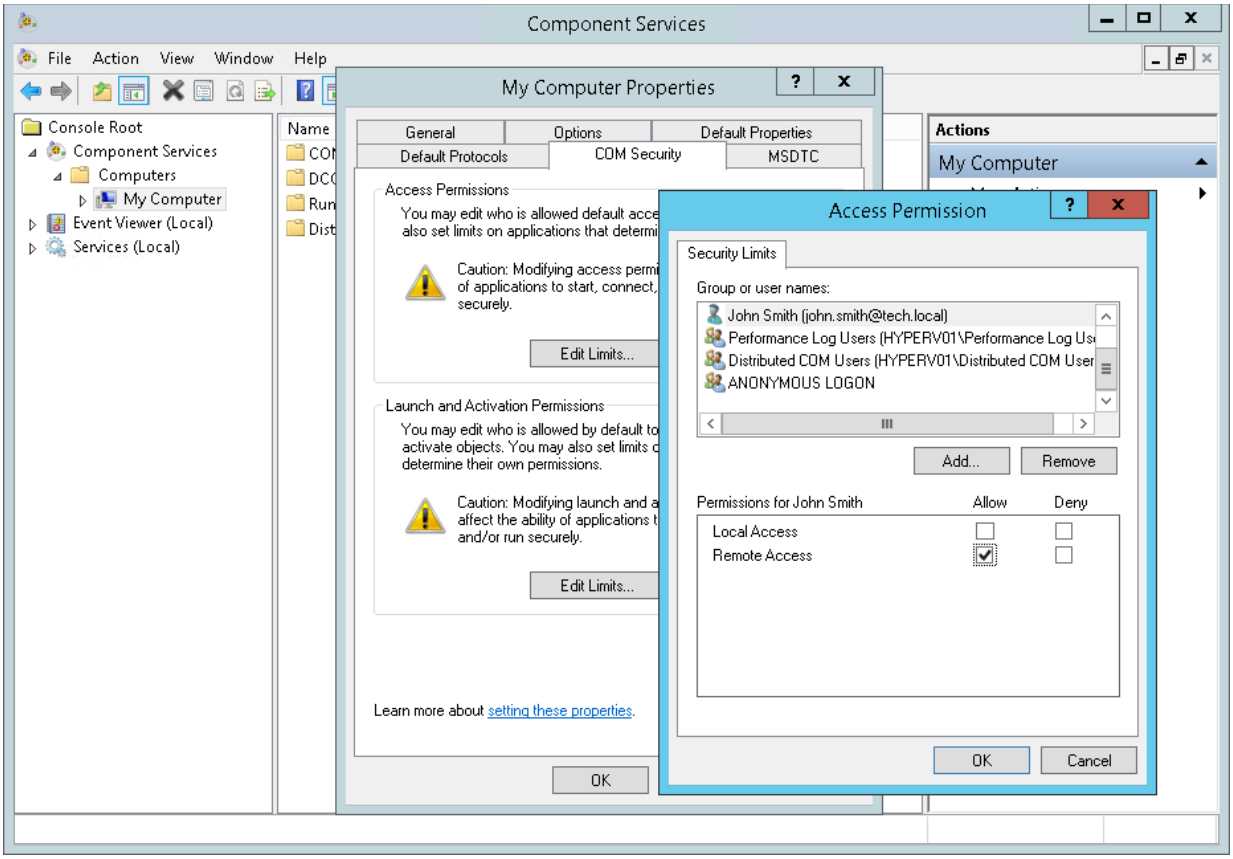
Step 2. Grant Remote Access, Launch and Activation Permissions for DCOM Application

To grant to an account remote access, launch and activation permissions:

1. Open the Component Services Console.

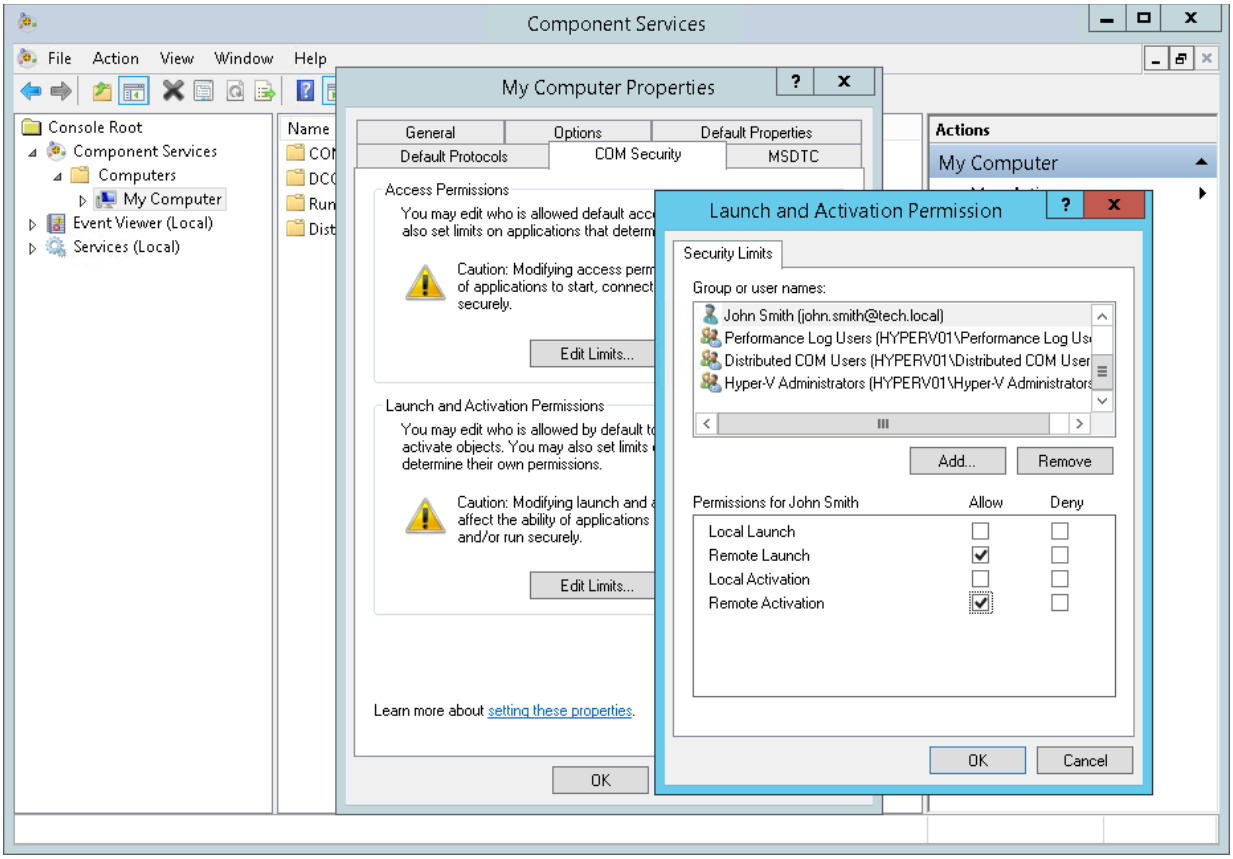
   To do so, choose **Start** > **Run**, type `dcomcnfg` and click **OK**.
2. In the navigation tree, go to **Component Services** > **Computers** > **My Computer**.
3. Right-click **My Computer** and select **Properties**.
4. In the **My Computer Properties** window, open the **COM Security** tab.
5. In the **Access Permissions** section, click **Edit Limits**.
6. In the **Access Permission** window, add the necessary user account.
7. Select the **Remote Access** permissions.

8. Click **OK**.



9. In the **Launch and Activation Permissions** section, click **Edit Limits**.
10. In the **Launch and Activation Permission** window, add the necessary user account.
11. Select the **Remote Launch** and **Remote Activation** permissions.

12. Click **OK**.



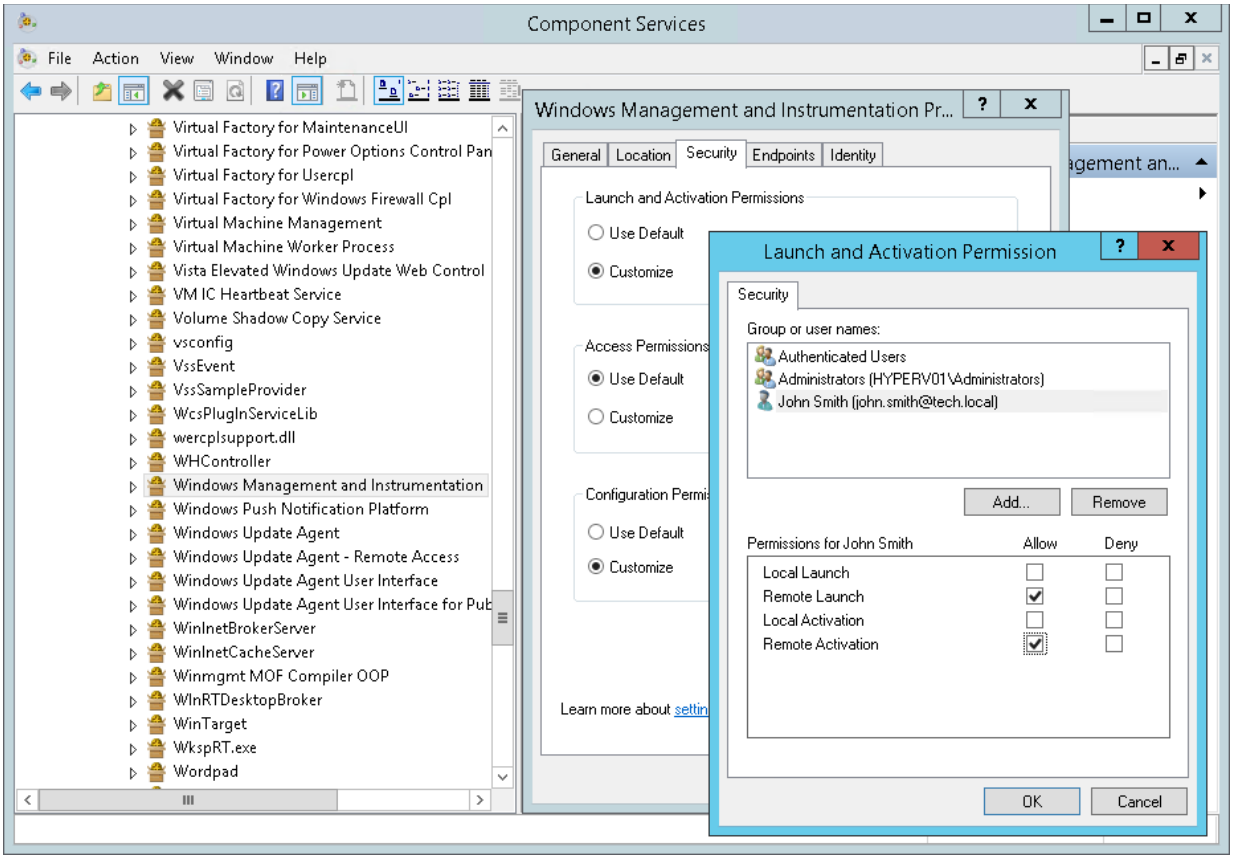
13. In the **My Computer Properties** window, click **OK**.

Step 3. Grant Remote Launch and Activation Permissions for WMI

To grant remote launch and activation permissions for WMI:

1. Still in the Component Services Console, in the navigation tree, go to **Component Services** > **Computers** > **My Computer** > **DCOM Config** > **Windows Management and Instrumentation**.
2. Right-click **Windows Management and Instrumentation** and select **Properties**.
3. In the **Windows Management and Instrumentation Properties** window, open the **Security** tab.
4. In the **Launch and Activation Permissions** section, click **Edit**.
5. In the **Launch and Activation Permission** window, add the necessary user account.

6. Select the **Remote Launch** and **Remote Activation** permissions.



7. In the **Launch and Activation Permission** window, click **OK**.
8. In the **Windows Management and Instrumentation Properties** window, click **OK**.
9. Close the Component Services Console.

Alternative Methods of Configuring Permissions to Remotely Access WMI

As an alternative to the method described above, you can use a domain user account that is member of the local Administrators group on target Microsoft Windows machines. Administrators have all the required permissions by default.

You can also use a local Administrator account for connecting remote Microsoft Windows machines. However, this method will not work if remote machines have the User Account Control enabled.

Connection Under UAC

Veeam ONE collects data from Microsoft Windows servers using WMI. For some configurations, UAC access token filtering can prevent running WMI commands on connected machines, which in turn will cause data collection failures.

The affected configurations are:

- Non-domain machines (machines in a workgroup)
- Machines with an unelevated local Administrator account (the account that is not Built-in Administrator)

For details on UAC access token filtering, see Microsoft Learn.

Machines in a Workgroup

To allow Veeam ONE collect data from machines in a workgroup, perform the following steps:

1. Set the network location to private:
    a. Log on to a machine as Administrator.
    b. Open the **Network & Internet** settings.
    c. In the list of active networks, click the necessary network and click **Properties**.
    d. Change network profile to *Private*.
    In some Windows OS versions, this location is called *Home* or *Work*.
2. To configure Windows Remote Management, in the command prompt, type `winrm quickconfig` and press `[Enter]`.

Domain Machines

To allow Veeam ONE collect data from domain machines, create the `LocalAccountTokenFilterPolicy` registry entry on the machine. For details, see this Microsoft Learn article.

Authorizing with Veeam ONE

To authorize with Veeam ONE software components (Veeam ONE Client and Web Client), a user must have the *Allow log on locally* privilege assigned.

By default, this privilege is assigned to users included in the local Administrators group. For users not included in the local Administrators group, you must assign this privilege manually. For details, see Microsoft Learn.

> **NOTE:**
>
> In the custom deployment scenario, you must assign the *Allow log on locally* privilege on the machines that host the Veeam ONE Server and Veeam ONE Web Services architectural components.

Remote Access

To be able to access Veeam ONE software components installed on a remote machine, you can use one of the following options.

Remote Access to Veeam ONE Web Client through Web Browser

Veeam ONE Web Client console can be accessed using a web browser on a remote machine. For details on how to access Veeam ONE software components, see Accessing Veeam ONE Client and Web Client.

To access Veeam ONE Web Client console remotely, a user must be a member of the *Veeam ONE Administrators*, *Veeam ONE Read-Only Users* or *Veeam ONE Power Users* group on the machines where Veeam ONE Web Services and Veeam ONE Server components are installed. For details on Veeam ONE security groups, see Security Groups.

Remote Access for Multi-Tenant Monitoring and Reporting

Veeam ONE supports multi-tenant access to its monitoring and reporting capabilities. Authorized users can remotely monitor a subset of the vCenter Server or VMware Cloud Director infrastructure and create reports.

To monitor and report on a restricted scope of the virtual infrastructure, a user must have permissions assigned on objects of the vCenter Server or VMware Cloud Director inventory hierarchy. For details, see Multi-Tenant Monitoring and Reporting.

Ports

The following table lists connection settings required for proper communication between Veeam ONE components, virtualization servers, VMware Cloud Director servers, Veeam Backup & Replication servers and Veeam Backup for Microsoft 365 servers.

From	To	Protocol	Port	Notes
Veeam ONE	vCenter ESXi	SSL	443[1]	Required to collect data from vCenter Server / ESXi hosts. To learn how to check the current state of the vSphere API port, see the VMware vSphere documentation.
		TCP	5989	Required to collect ESXi host hardware details via CIM XML.
		TCP	10080 10443	Default port used to access vCenter Inventory Service (HTTP or HTTPS) and collect vCenter Server tags. Required for vCenter Server 5.x only.
	Platform Services Controller (PSC)	HTTPS	443	Default port used to collect and assign VMware Tags data. Required for vCenter Server starting from version 6.5.
	VMware Cloud Director	SSL	443[1]	Required to collect data from VMware Cloud Director.

From	To	Protocol	Port	Notes
	SCVMM	TCP	8100	Default SCVMM Administrator Console to Microsoft SCVMM server port (required by the Veeam ONE Service).
	Hyper-V host	TCP	135, 49152 to 65535	Required to collect data from Microsoft Hyper-V hosts through WMI.
		TCP	135 445	Required to gather CPU and memory performance data from Microsoft Hyper-V hosts.[4]
		TCP	445	Required to access remote registry.
	Veeam Backup & Replication	TCP	135, 49152 to 65535	Required to collect data from Veeam Backup & Replication servers through WMI.
		TCP	135 445	Required to gather CPU and memory performance data from Veeam Backup & Replication infrastructure servers.[4]
		TCP	445	Required to access remote registry.
		TCP	2805	Default port used for communication with Veeam ONE agent installed on Veeam Backup & Replication server.

From	To	Protocol	Port	Notes
		TCP	1239 2741	Required to connect to Veeam Backup & Replication server analytics and Veeam Backup & Replication Remote Console host.
	Veeam Backup Enterprise Manager	TCP	135, 49152 to 65535	Required to collect data from Veeam Backup Enterprise Manager through WMI.
	Veeam backup proxy	TCP	135, 49152 to 65535	Required to gather CPU and memory performance data from backup infrastructure servers.[4]
	Veeam backup repository (Windows)	TCP	135, 49152 to 65535	Required to gather CPU and memory performance data from backup infrastructure servers.[4]
	Veeam WAN accelerator	TCP	135, 49152 to 65535	Required to gather CPU and memory performance data from backup infrastructure servers.[4]
	Microsoft Windows VM Guest OS	TCP	135, 445, 49152 to 65535	Required to monitor Microsoft Windows VM guest OS processes and services.
	Linux VM Guest OS	TCP	22	Required to monitor Linux VM guest OS processes and services.

From	To	Protocol	Port	Notes
	Veeam License Update Server (*one.butler.veeam.com)*	TCP	443	Default port used for auto-update of license, Veeam Intelligent Diagnostics signatures.
	Veeam License Update Server (*setup.butler.veeam.com*)	TCP	443	Default port used for auto-update of license during Veeam ONE setup.
	Certificate Revocation List	TCP	80	Required for certificate validation when Veeam ONE connects to Veeam License Update Server (one.butler.veeam.com) to check if the new license is available and download it. Consider that certificate verification endpoints (CRL URLs and OCSP servers) are subject to change. The actual list of addresses can be found in the certificate itself.
		HTTP	**Certificate verification endpoints:** • o.ss2.us • ocsp.sca1b.amazontrust.com • ocsp.rootca1.amazontrust.com • ocsp.rootg2.amazontrust.com • crl.r2m02.amazontrust.com • ocsp.r2m02.amazontrust.com • crl.rootca1.amazontrust.com	
	Veeam Download Server (*download2.veeam.com*)	TCP	443	Default port used to download Veeam Intelligent Diagnostics signatures.
	Veeam Backup for Microsoft 365	HTTPS	4443	Required to collect data from Veeam Backup for Microsoft 365 REST API.

From	To	Protocol	Port	Notes
		TCP	135, 445, 49152 to 65535	Required to gather CPU and memory performance data from Veeam Backup for Microsoft 365 infrastructure servers.
		UDP	5355	Required to gather CPU and memory performance data from Veeam Backup for Microsoft 365 server.
	Veeam Backup for Microsoft 365 (optional)	HTTP	5985	Required to remotely enable the Veeam Backup for Microsoft 365 REST API service when adding a server to Veeam ONE.
	SMTP server	TCP	25	Default port used by the SMTP server to send email notifications. Port 25 is most commonly used but the actual port number depends on configuration of your environment.
	Veeam Backup & Replication (optional)	HTTPS	8543	Port used by Nutanix AHV Platform Service. Required for collecting data about protected Nutanix VMs.

From	To	Protocol	Port	Notes
		HTTPS	20443	Port used by Microsoft Azure Platform Service. Required for collecting data about protected Azure VMs.
		HTTPS	9402	Port used by AWS Platform Service. Required for collecting data about protected AWS VMs.
		HTTPS	9403	Port used by Google Cloud Platform Service. Required for collecting data about protected Google Cloud instances.
	File Server (SMB)	TCP	445	Port required to get information about used and free space on SMB shares used by connected Microsoft Hyper-V hosts and clusters.
Veeam ONE Server	Microsoft SQL Server	TCP	1433	Port used for communication with the Microsoft SQL Server on which the Veeam ONE database is deployed. Additional ports may need to be open depending on your configuration. For details, see Microsoft Docs.

From	To	Protocol	Port	Notes
Veeam ONE Web Services	Veeam ONE Server	TCP	2714	Port used for communication between Veeam ONE Web Services and Monitoring Service on the Veeam ONE Server.
		TCP	2742	Port used for communication between Veeam ONE Web Services and Reporting Service on the Veeam ONE Server.
		TCP	2741	Port used for communication with Veeam ONE internal Web API.
Veeam ONE Client	Veeam ONE Server	TCP	139[3]; 445[3]	Used by Veeam ONE Client to communicate with the Veeam ONE Server.
		UDP	137[3]	
Workstation Web Browser	Veeam ONE Web Services	HTTPS	1239	Default port to access Veeam ONE Web Services from a user workstation (a different port number can be chosen during setup).

[1] You must open these ports manually
[2] To learn about enabling and disabling WMI traffic, see Connecting to WMI Remotely with VBScript and Setting up a Remote WMI Connection
[3] Associated with the File and Printer Sharing service
[4] To gather performance data from Windows Server 2012 and 2012 R2, you must additionally enable network discovery.

Firewall Rules

The following table lists exceptions that should be enabled in Windows Firewall Settings.

Server	App/Feature	Details
Hyper-V host	Remote Event Log Management: • Remote Event Log Management (NP-In) • Remote Event Log Management (RPC) • Remote Event Log Management (RPC-EPMAP) COM+ Network Access: • COM+ Network Access (DCOM-In)	Required to collect events data from Hyper-V hosts.
Veeam Backup & Replication server	Remote Event Log Management: • Remote Event Log Management (NP-In) • Remote Event Log Management (RPC) • Remote Event Log Management (RPC-EPMAP) COM+ Network Access: • COM+ Network Access (DCOM-In)	Required to collect events data from Veeam Backup & Replication servers.
Veeam Backup for Microsoft 365 Server	COM+ Network Access: • COM+ Network Access (DCOM-In) Network Discovery: • Network Discovery (LLMNR-UDP-In)	Required to gather CPU and memory performance data from Veeam Backup for Microsoft 365 servers.

Sizing and Scalability Best Practices

This section provides deployment guidelines for achieving maximum performance of Veeam ONE 12 in large-scale environments, that is environments with 10,000 VMs and more. You can also use these guidelines for smaller environments.

The recommended deployment configuration can be equally used for POC deployments and deployments in production.

System Requirements for Large-Scale Deployment

The required deployment configuration relies on the custom deployment scenario, where Veeam ONE components are hosted as follows:

- Veeam ONE Server (on a dedicated machine)
- Microsoft SQL Server (on a dedicated machine)
- Veeam ONE UI (co-installed with Veeam ONE Server or run on a standalone machine)

Veeam ONE supports both virtual and physical servers for installation. This document describes a scenario where Veeam ONE components are installed on virtual machines.

Veeam ONE Server

For the Veeam ONE Server component, use a server that meets the following requirements.

Hardware Recommendations

Specification	Veeam Backup Data Only[1]	Virtual Infrastructure
CPU	The amount of required CPU resources depends on the number of workloads being protected in the managed infrastructure: • 2 vCPUs for up to 1,000 protected workloads • 2–4 vCPUs for 1,000–10,000 protected workloads • 4–6 vCPUs for 10,000–20,000 protected workloads • 6–8 vCPUs for 20,000–40,000 protected workloads • 8–10 vCPUs for 40,000–60,000 protected workloads Regardless of the number of protected workloads: • For every connected Veeam Backup for Microsoft 365 server, additional 1 vCPU core is required. • For every connected Veeam Backup & Replication server, additional 0.03 vCPU core is required.	The amount of required CPU resources depends on the number of hosts in the managed infrastructure: • 4 vCPUs for up to 1,500 VMs • 4–12 vCPUs for 1,500–10,000 VMs • 12–16 vCPUs for 10,000–20,000 VMs • 16+ vCPUs for 20,000+ VMs

Specification	Veeam Backup Data Only[1]	Virtual Infrastructure
RAM	The amount of required memory resources depends on the number of workloads being protected in the managed infrastructure: • 4 GB for up to 1,000 protected workloads • 4–15 GB for 1,000–10,000 protected workloads • 15–30 GB for 10,000–20,000 protected workloads • 30–50 GB for 20,000-40,000 protected workloads • 50–80 GB for 40,000 - 60,000 protected workloads Regardless of the number of protected workloads: • For every connected Veeam Backup for Microsoft 365 server, additional 500 MB RAM is required. • For every connected Veeam Backup & Replication server, additional 60 MB RAM is required.	50 MB per 15 managed VMware VMs and 600 MB per managed vCenter Server. **Note**: This requirement assumes that there are no standalone hosts in the managed infrastructure. All hosts must be included in clusters, and clusters must be managed by vCenter Server/SCVMM. Such configuration results in fewer connections to virtual servers during data collection, and requires less memory resources. In environments with standalone hosts connected to Veeam ONE directly, memory requirements will be higher.
Disk	50 GB recommended space for Veeam ONE cache and Veeam Intelligent Diagnostics logs.	
Bandwidth	1 Mbit/sec for 100 hosts	

[1] Under the condition that a protected workload is included in one data protection job scheduled to run daily, that is, has one restore point per day. For example, if a workload is included in two data protection jobs, consider it as two protected workloads, as it will consume twice as much computing resources.

Software and OS Requirements

Specification	Requirement
OS	Only 64-bit versions of the following operating systems are supported: • Microsoft Windows Server 2022 • Microsoft Windows Server 2019 • Microsoft Windows Server 2016 • Microsoft Windows 11 (Professional and Enterprise editions) • Microsoft Windows 10 version 1909 and LTS builds (Professional and Enterprise editions) • Microsoft Windows Server 2012 R2 • Microsoft Windows Server 2012 **Note:** Semi-Annual Channel (SAC) releases are supported.
Software	The following components are included in the Veeam ONE setup package and can be installed automatically: • Microsoft .NET Framework 4.7.2 • Microsoft Windows Desktop Runtime 6.0.24 • Microsoft NET Core Shared Framework 6.0.24 • Microsoft OLE DB Driver for SQL Server 18.6.6.0 • Microsoft System CLR Types for SQL Server 2014 • Microsoft SQL Server 2014 Management Objects • Microsoft XML 6.0 Parser and SDK • Microsoft Universal C Runtime *Requires latest Veeam ONE Cumulative Patch (build 12.0.1.2591 or later) To connect SCVMM servers to Veeam ONE, the following software is required: • System Center 2022 Virtual Machine Manager console (for connecting SCVMM 2022 servers) • System Center 2019 Virtual Machine Manager console (for connecting SCVMM 2019 servers) • System Center 2016 Virtual Machine Manager console (for connecting SCVMM 2016 servers) • System Center 2012 R2 Virtual Machine Manager console (for connecting SCVMM 2012 R2 servers) • System Center 2012 Virtual Machine Manager console (for connecting SCVMM 2012 servers) • Microsoft PowerShell 3.0 (required for SCVMM 2012, SCVMM 2012 R2, SCVMM 2016, and SCVMM 2019 consoles) Be sure to install the same versions of the Admin UI and the SCVMM Server, and to update both components to the same update version.

Specification	Requirement
Other	• Windows Management Instrumentation service must be enabled. • File and Print Sharing service must be enabled.

Microsoft SQL Server

For the Veeam ONE database, use a server that meets the following requirements.

Hardware Recommendations

Specification	Veeam Backup Data Only	Virtual Infrastructure
CPU, RAM	CPU and RAM sizing requirements are the same as for the Veeam ONE Server. Note: the Standard Edition of SQL Server does not allow the use of more than 4 CPU sockets (or more than 24 cores in total). If the recommended amount of cores or sockets exceeds these limits, SQL Server Enterprise Edition must be used. **Important!** These requirements assume that the Veeam ONE database is hosted on a dedicated Microsoft SQL Server. If the SQL Server is shared by several applications, compute requirements will be higher. To calculate the amount of resources required by other applications, see application-specific sizing recommendations for Microsoft SQL Server.	
Disk	Install the OS and Microsoft SQL Server on different drives. **OS Drive**: 50 GB **Application drive**: Use the Veeam ONE Database Calculator to size application data. With partitioning scripts, you will have the following distribution of the Veeam ONE database size: • **Primary Tables**: 20% • **Partitioned Tables**: 80% Size the following tables in accordance with Microsoft SQL Server recommendations: • **Primary Logs** • **Partitioned Logs** • **TempDB** **Other**: SSD RAID storage with broadband connectivity must be used for the TempDB table.	
OS	Windows Server 2012 R2, 2016, 2019 or 2022	

Specification	Veeam Backup Data Only	Virtual Infrastructure
Microsoft SQL Server	• Microsoft SQL Server 2014, 2016, 2017 or 2019 Enterprise Edition • Microsoft SQL Server Reporting Services 2014, 2016, 2017 or 2019	
Other	If you use a virtualized Microsoft SQL Server, this server must run on a separate LUN/datastore from Veeam ONE Server.	

Software and OS Requirements

Specification	Requirement
Software	**Microsoft SQL Server (Full and Express Editions):** • Microsoft SQL Server 2022 • Microsoft SQL Server 2019 • Microsoft SQL Server 2017 (Microsoft SQL Server 2017 without cumulative updates Express edition is included in Veeam ONE setup) • Microsoft SQL Server 2016 • Microsoft SQL Server 2014 • Microsoft SQL Server 2012 (Microsoft SQL Server 2012 SP14 Express edition is included in Veeam ONE setup) **Reporting Services (optional):** • Microsoft SQL Server Reporting Services 2022 • Microsoft SQL Server Reporting Services 2019 • Microsoft SQL Server Reporting Services 2017 • Microsoft SQL Server Reporting Services 2016 • Microsoft SQL Server Reporting Services 2014 • Microsoft SQL Server Reporting Services 2012

Database Size

To calculate an expected size of the Veeam ONE database, use the Veeam ONE Database Calculator. The calculator helps estimate disk space required to store VMware vSphere, Microsoft Hyper-V and Veeam Backup & Replication data.

For details, see https://www.veeam.com/kb2246.

Veeam ONE UI

Veeam ONE Client and Veeam ONE Web Services components can be installed on the same machine, or can run separately.

For security purposes, it is recommended to install these components on a machine that does not host the Microsoft SQL Server and Veeam ONE Server components.

Veeam ONE Web Services

For the Veeam ONE Web Services component, use a machine that meets the following requirements:

Specification	Requirement
CPU	Modern processor (minimum 2 cores). Using faster multi-core processors improves data processing performance.
RAM	2 GB minimum

Veeam ONE Client

Veeam ONE Client has no specific requirements, and can be installed on any machine. For Veeam ONE Client, use a machine that meets the following requirements:

Specification	Requirement
CPU	Modern x86/x64 processor
RAM	2–4 GB recommended

Walkthrough: Deploy and Configure Veeam ONE

To deploy and configure Veeam ONE for a large-scale environment, complete the following steps:

1. [Optional] Pre-create the Veeam ONE database.
2. Install Veeam ONE Server.
3. Install Veeam ONE Web Client and Client.
4. Configure connection to the SSRS Server.
5. Configure data retention.

Step 1. Pre-create Veeam ONE Database (Optional)

If you do not want to create the Veeam ONE database automatically using the Veeam ONE Setup wizard, you can pre-create it before installing Veeam ONE Server.

For details, see Appendix A. Creating Veeam ONE Database with SQL Script.

Step 2. Install Veeam ONE Server

Install the Veeam ONE Server component on a dedicated machine. For detailed installation instructions, see section Installing Veeam ONE Server.

Step 3. Install Veeam ONE Web UI and Client

Install Veeam ONE Web Client component and Client.

For detailed installation instructions, see sections Installing Veeam ONE Web Services and Installing Veeam ONE Client.

Step 4. Configure Connection to SSRS Server

Configure a connection to Microsoft SSRS Server in Web Client:

1. Log in to Web Client as *Veeam ONE Administrator*.
2. Open **Configuration**.
3. In the configuration menu, click **Reporting**.
4. Select the **Use SSRS server for generating reports** check box.
5. In the **Server URL** field, type an URL to the Reporting Services report server page.

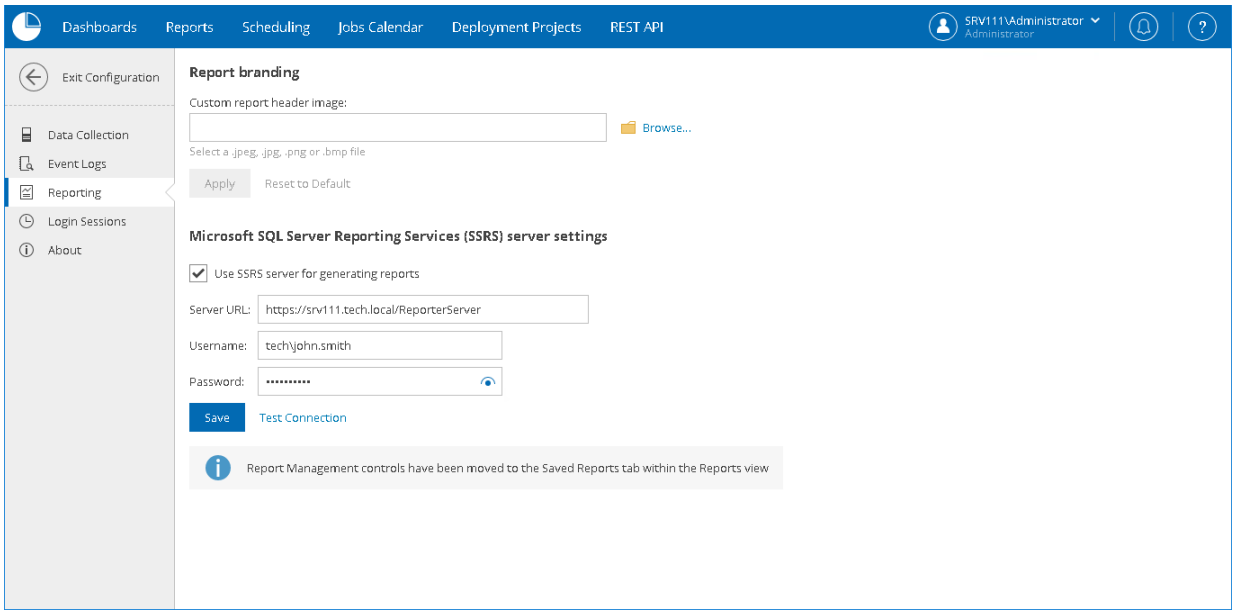
   The URL must have the following form:

   `http://[ServerName]:port/ReportServer`

   If you configured a named instance for Microsoft SQL Server, the URL must look as follows:

   `http://[ServerName]:port/ReportServer_NAMEDSQLINSTANCE`
6. In the **Username** and **Password** fields, type credentials for connecting to the SSRS Server.

   The account must have the *System User* role assigned.
7. Test connection to the SSRS Server and click **Save**.



Step 5. Configure Data Retention

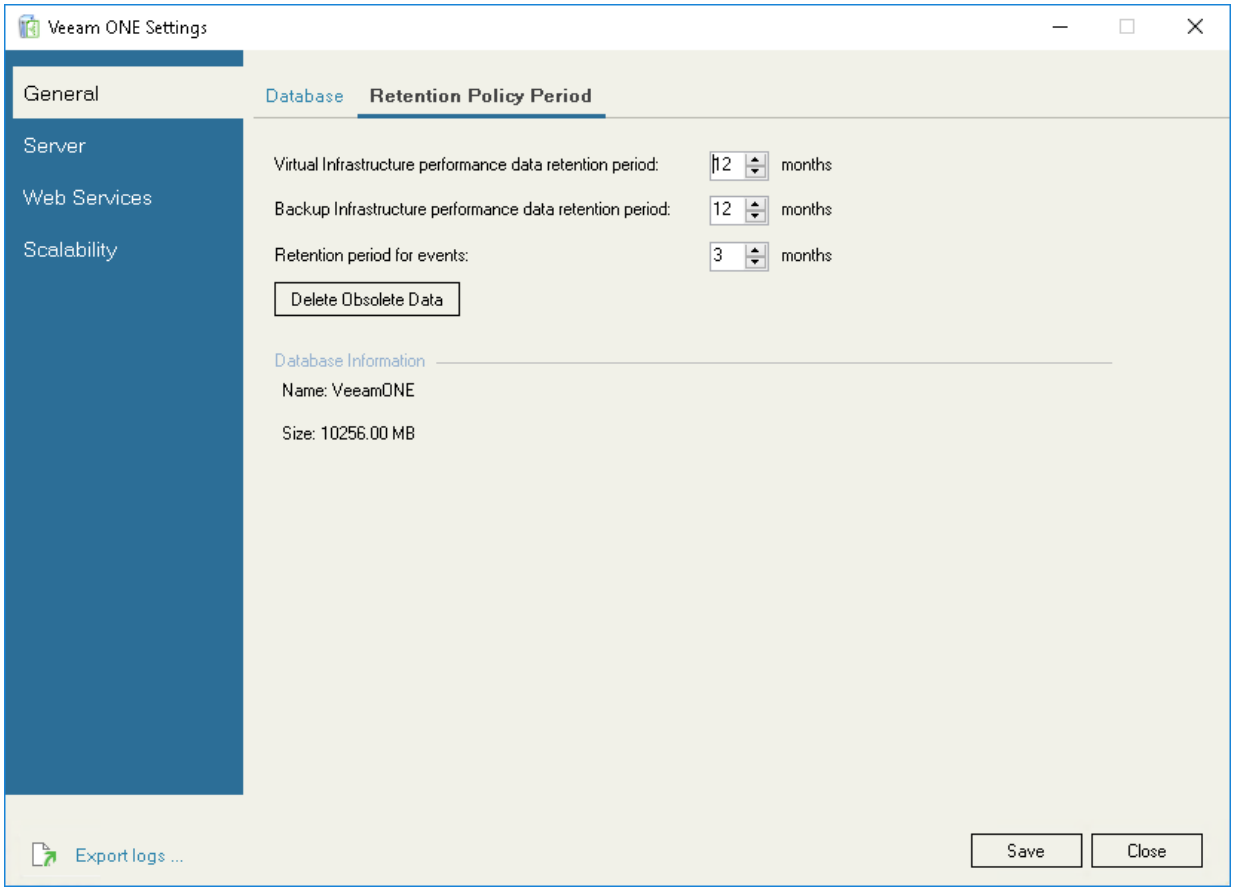
In Veeam ONE Settings utility, review and change retention settings.

It is recommended to make the retention period for events 3 months or less, as events data take up a lot of space in the database. The retention period for virtual infrastructure and backup performance data is normally set to 6-12 months.

Decreasing the default retention values helps maintain a lower size of the Veeam ONE database, but results in reducing the period for which performance and events data is available in Client and Web Client.

1. In the menu on the left, click **General**.
2. Open the **Retention Policy Period** tab.
3. Specify for which period virtual infrastructure performance data, backup infrastructure performance data and events data must be stored.

   Specified retention values will be applied at the end of the current week. To apply retention settings immediately, click **Delete Obsolete Data**.
4. Click **Save**.
5. In the displayed dialog box, click **OK** to restart Veeam ONE services.



Installing Veeam ONE

This section will guide you through the process of Veeam ONE installation.

Before You Begin

Before you begin installation, check the following prerequisites:

- Check platform and system requirements.

  Check that your virtual platform is supported. Make sure the machine where Veeam ONE will be installed meets hardware and software requirements.

- Check account permissions.

  Make sure the user account under which Veeam ONE will be installed has sufficient permissions.

- Check ports.

  Make sure all required ports are open for communication between Veeam ONE components, virtualization servers, VMware Cloud Director servers and Veeam Backup & Replication servers.

- Download the Veeam ONE installation image file at https://www.veeam.com/downloads.html.

  Burn the downloaded `ISO` image file to a CD/DVD or mount the installation image using disk image emulation software. If you install Veeam ONE on a VM, use built-in tools of the virtualization management software to mount the installation image to the VM.

- [Optional] Pre-create Veeam ONE database.

  Normally, the setup automatically creates the Veeam ONE database in the course of installation. However, in some circumstances it might be necessary to create the database with a SQL script instead of using the **Veeam ONE Setup** wizard. Before installing Veeam ONE, you can create the Veeam ONE database by executing a SQL script that is included with the Veeam ONE installation image.

All-in-One Installation

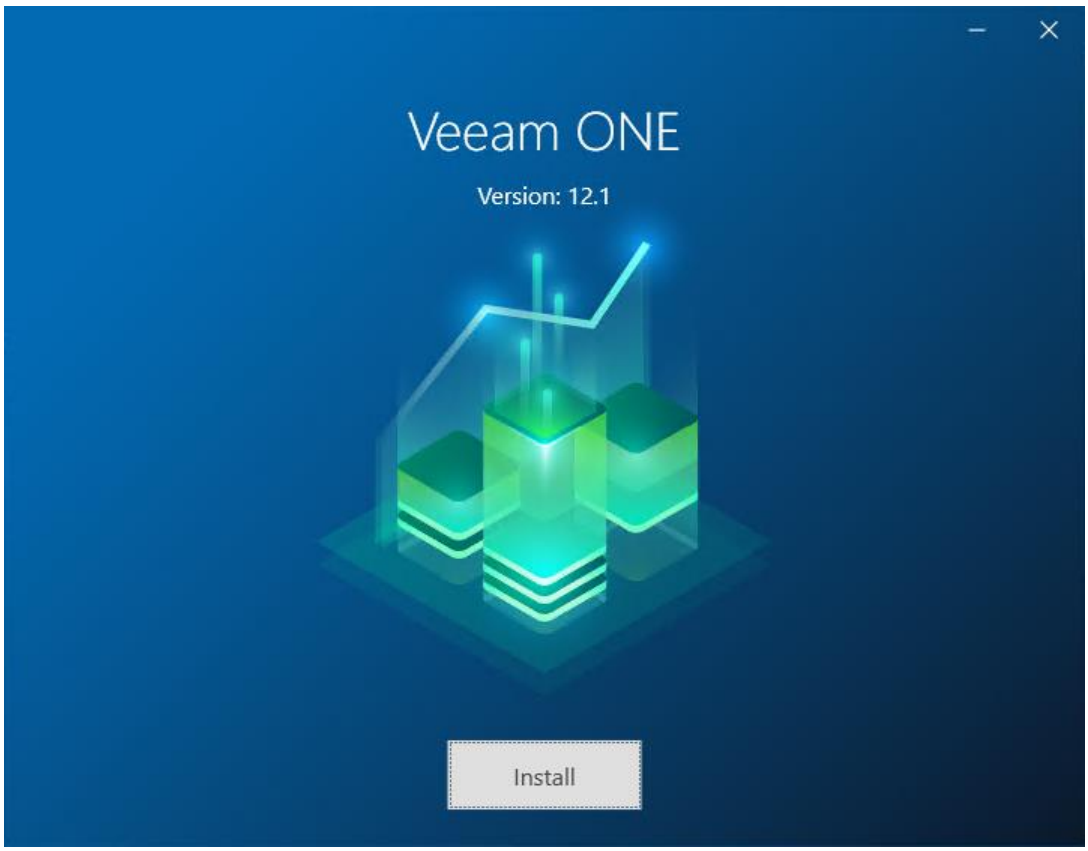
In the all-in-one deployment scenario, all Veeam ONE components are installed on a single machine. For details on this scenario, see All-in-One Deployment.

To install Veeam ONE using the typical scenario, follow these steps.

Step 1. Launch Splash Window

After you mount or insert the disk with Veeam ONE installation image, **Autorun** will open a splash screen with installation options. On the splash window, click **Install** to launch the **Veeam ONE Setup** wizard.

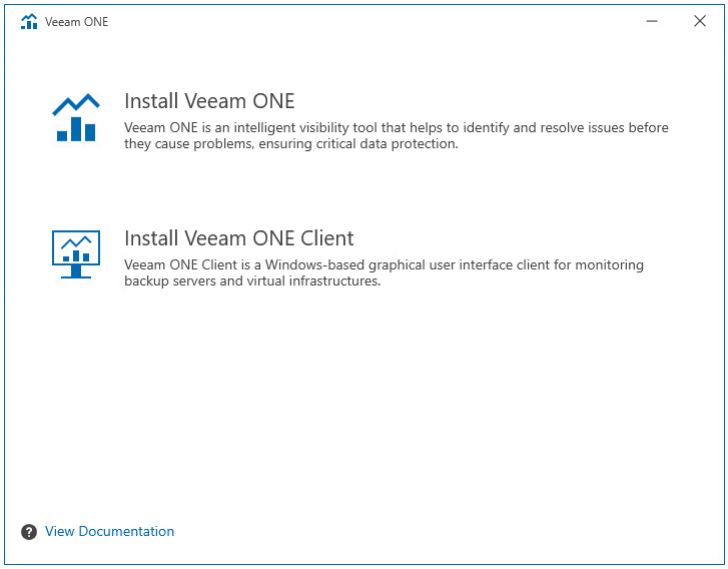
If **Autorun** is disabled, run the `Setup.exe` file from the installation image. Alternatively, you can right-click the new disk in **My Computer** and select **Execute Veeam ONE Autorun**.



Step 2. Select Component

At the **Select Veeam ONE Component** step of the wizard, select **Install Veeam ONE**.

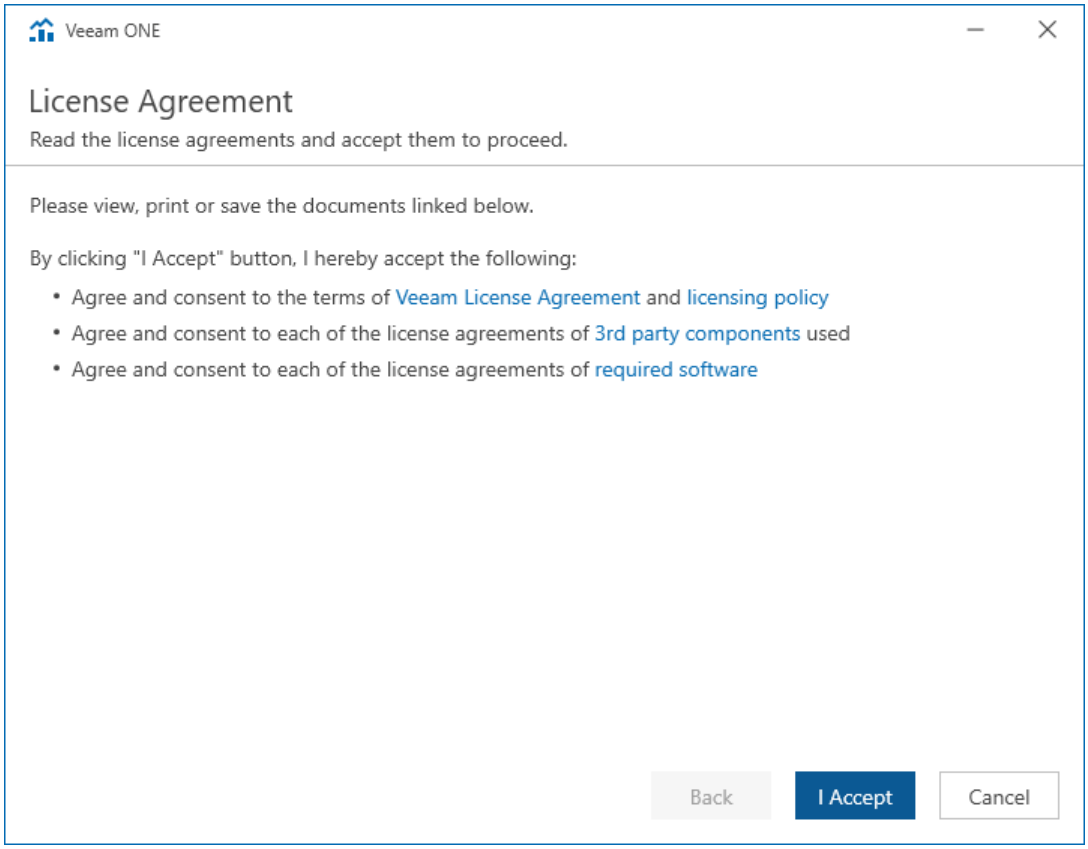
To open Veeam Help Center from the setup wizard, click **View Documentation**.



Step 3. Accept License Agreements

At the **License Agreement** step of the wizard, read and accept Veeam license agreement, licensing policy, 3rd party components and required software license agreements. You will not be able to continue installation until you accept license agreements.

To read the terms of the license agreements, click the individual links.

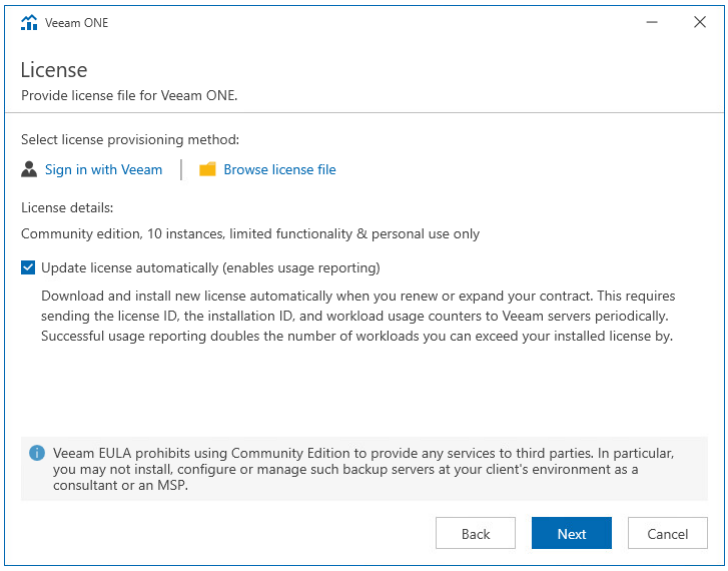


Step 4. Provide License

At the **License** step of the wizard, click one of the two options to provide a license:

- **Sign in with Veeam** – open the Veeam account Sign in screen to log in with your Veeam account credentials if you already have a registered license on your account.
- **Browse license file** – specify the local path to the license file.

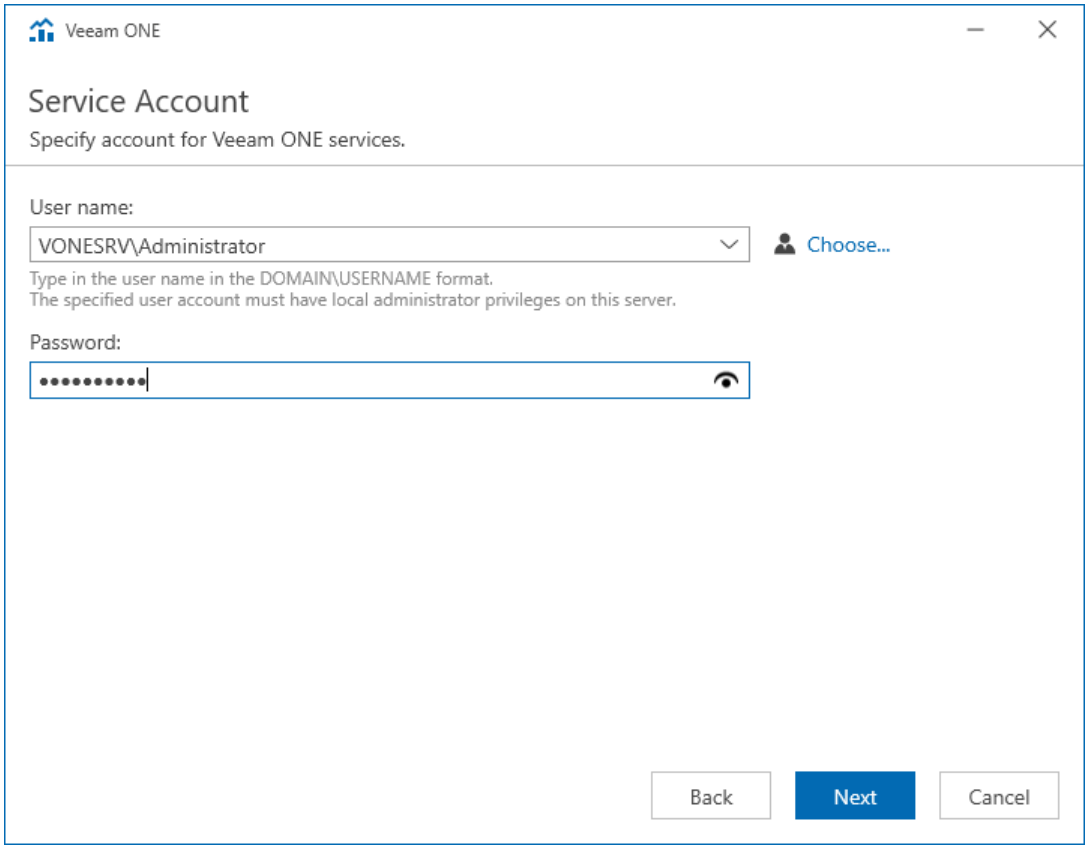
To install new licenses automatically when you renew or expand your contract, select the **Update license automatically** check box. If you enable the automatic license update, and therefore enable usage reporting, you will double the number of workloads by which you can exceed your installed license. Note that for *Evaluation* and *NFR* licenses automatic license update must be enabled.



Step 5. Specify Service Account Credentials

At the **Service Account** step of the wizard, specify credentials of the account under which the Veeam ONE services will run. The user name must be specified in the *DOMAIN|USERNAME* format. Alternatively click **Choose** to select an existing user account.

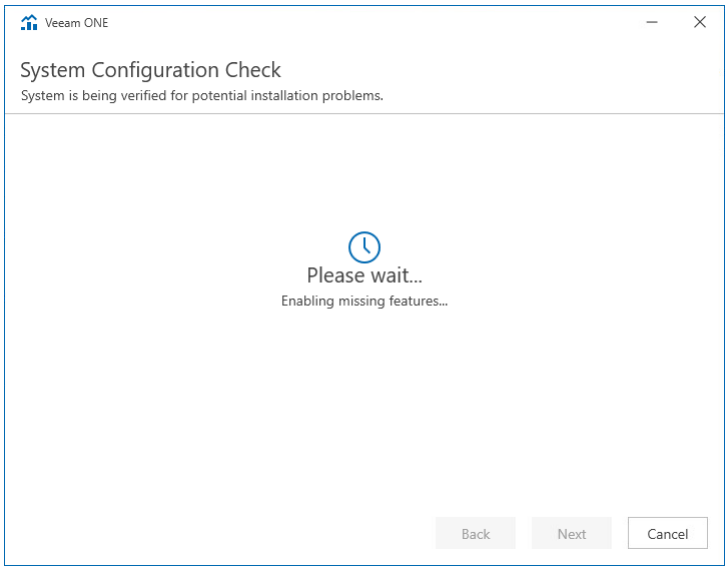
For details on required permissions for the service account, see Veeam ONE Service Account.



Step 6. Perform System Configuration Check

Before proceeding with the installation, the installer will perform system configuration check to determine if all prerequisite software is available on the machine. To learn what software is required for Veeam ONE, see System Requirements.

If some of the required software components are missing, the setup wizard will enable the missing software components and features automatically.

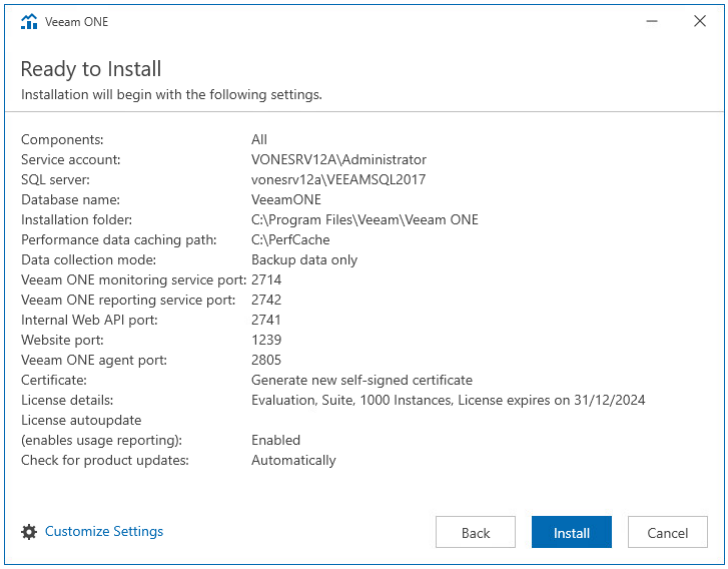


Step 7. Review Installation Summary

At the **Ready to Install** step of the wizard, review installation configuration to ensure that you have provided correct settings.

If you need to change any settings in the installation summary, click **Customize Settings** and proceed to Step 8. Select Architectural Components.

Click **Install** to begin the installation.

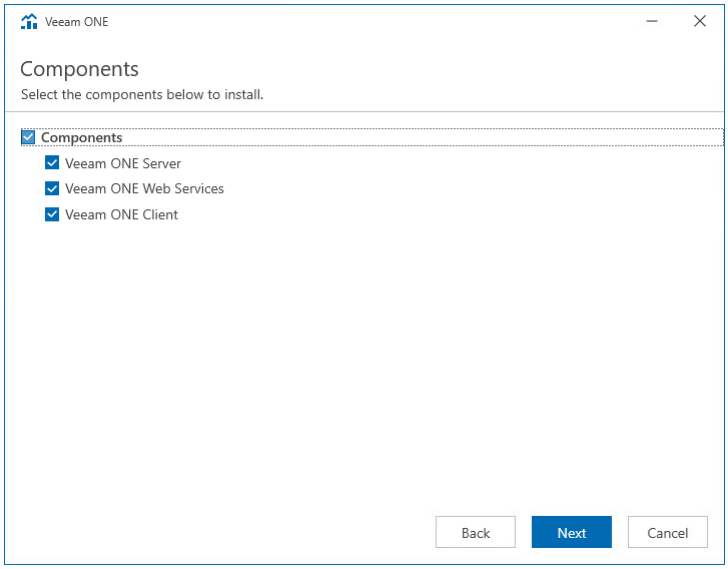


When the installation completes, click **Finish** to close the wizard.

Step 8. Select Architectural Components

For an All-in-One installation, select the **Components** check box to install all components:

- Veeam ONE Server
- Veeam ONE Web Services
- Veeam ONE Client



Step 9. Choose Microsoft SQL Server

At the **SQL Server Instance** step of the wizard, choose a Microsoft SQL Server instance that will host the Veeam ONE database.

- If you do not have a Microsoft SQL Server instance that you can use for Veeam ONE database, select the **Install new instance of SQL Server** option.

  If this option is selected, the setup will install Microsoft SQL Server 2017 Express locally, on the computer where you are installing Veeam ONE.

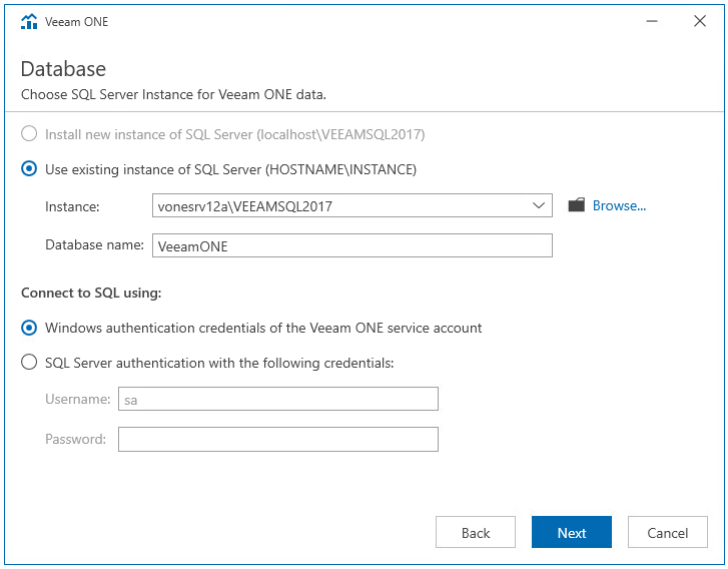
  > **NOTE:**
  > - If a Microsoft SQL Server instance that meets Veeam ONE system requirements is detected on the machine, you can only use the existing local Microsoft SQL Server instance or choose a one that runs remotely. The option to install a new Microsoft SQL instance will be unavailable in this case.
  > - If you choose to host Veeam ONE database on Microsoft SQL Server Express, consider is a 10 GB database size limitation for this edition. For details, see Editions and Supported Features for SQL Server.

- If you want to use an existing local or remote Microsoft SQL Server instance, select the **Use existing instance of SQL Server** option and choose a local Microsoft SQL Server instance or browse to a Microsoft SQL Server instance running remotely. You can enter the address of a preferred Microsoft SQL Server manually or use the **Browse** button to choose among available remote instances.

  In the **Database name** field, specify the name of the database that will be created by Veeam ONE. Provide credentials for the account that will be used by Veeam ONE components to access the database. You can enter credentials explicitly or use Windows authentication credentials of the Veeam ONE service account to connect to the Microsoft SQL Server. For details on required permissions for the account, see Connection to Microsoft SQL Server.

- If you already have an existing Veeam ONE database that you want to use in your deployment, select the **Use existing instance of SQL Server** option and choose a Microsoft SQL Server instance that hosts the database. This can be a database that you have previously created with a SQL script. In the **Database name** field, specify the name of the database.

  Provide credentials for the account that will be used by Veeam ONE components to access the database. You can enter credentials explicitly or use Windows authentication credentials of the Veeam ONE service account to connect to the Microsoft SQL Server. For details on required permissions for the account, see Connection to Microsoft SQL Server.



Step 10. Choose Data Locations

In the **Installation path**, choose the installation directory. In the typical installation mode, the setup installs all components to a single directory and creates a subdirectory for every Veeam ONE component.

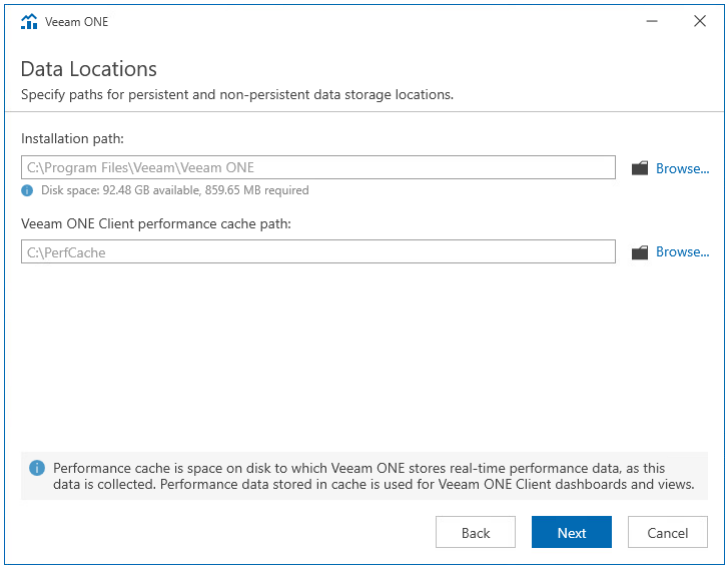
In the **Veeam ONE Client performance cache path**, choose a directory where the performance cache must be located.

Performance cache is space on disk to which Veeam ONE stores real-time performance data, as this data is collected. Performance data stored in cache is used for Veeam ONE Client dashboards and views. Disk-based performance cache allows significantly decrease RAM utilization on the machine that runs the Veeam ONE Server component.

By default, the performance cache is stored to the `C:\PerfCache` folder. To store the cache to a different folder, click **Browse** next to the **Path** field and specify a path to the new folder.

When choosing a location for performance cache, consider the following recommendations:

- Make sure that the disk where the performance cache is located can quickly complete read and write requests. Do not locate the cache remotely in networks with high latency values.
- For large monitoring environments, place the performance cache on an SSD local to the machine where the Veeam ONE Server component runs. For small and medium monitoring environments, a HDD is normally enough.
- Length of the performance cache folder path must not exceed the Windows Max Path Limitation value. For details, see Microsoft Learn.
- Make sure there is enough disk space for performance cache. The cache is cleared on an hourly basis, as new data is collected; however, in large monitoring environments it can take significant disk space. For example, in the custom deployment mode, during peak loads, the cache can take up to 6 GB disk space for each 1000 VMs.



The typical installation requires around 850 MB of free space on a disk (plus additional space if you choose to install Microsoft SQL Server instance on the same machine). Be aware that depending on the size of your virtual infrastructure and frequency of data collection, the database may grow large and require more space. Be sure to adjust to this condition by freeing up more disk space when needed.

Step 11. Choose Data Collection Mode

At the **Data Collection Mode** step of the wizard, choose the mode in which Veeam ONE will collect data from virtualization and Veeam Backup & Replication servers.

Data collection mode determines what metrics Veeam ONE will collect, and specifies the product configuration in a number of areas. Choosing an appropriate data collection mode allows you to optimize monitoring and reporting performance and improve user experience in Veeam ONE. To learn the difference between the data collection modes, see Appendix B. Data Collection Modes.

Veeam Backup Data Only

The **Veeam backup data only** mode is recommended for users who want to focus on Veeam Backup & Replication and Veeam Backup for Microsoft 365 monitoring and reporting, and do not need a deep visibility of the virtual infrastructure.

In this mode, Veeam ONE collects all inventory, configuration and performance metrics from Veeam Backup & Replication and Veeam Backup for Microsoft 365 servers. It also collects inventory and configuration metrics from virtualization servers, but skips virtual infrastructure performance metrics. As a result, Veeam ONE dashboards, reports and alarms display backup-related data only. For VMware vSphere and Microsoft Hyper-V objects, performance data is not available.

This mode results in the least possible size of the Veeam ONE database and the lowest load on the Veeam ONE server.

Veeam Backup Data and Virtual Infrastructure Performance Monitoring

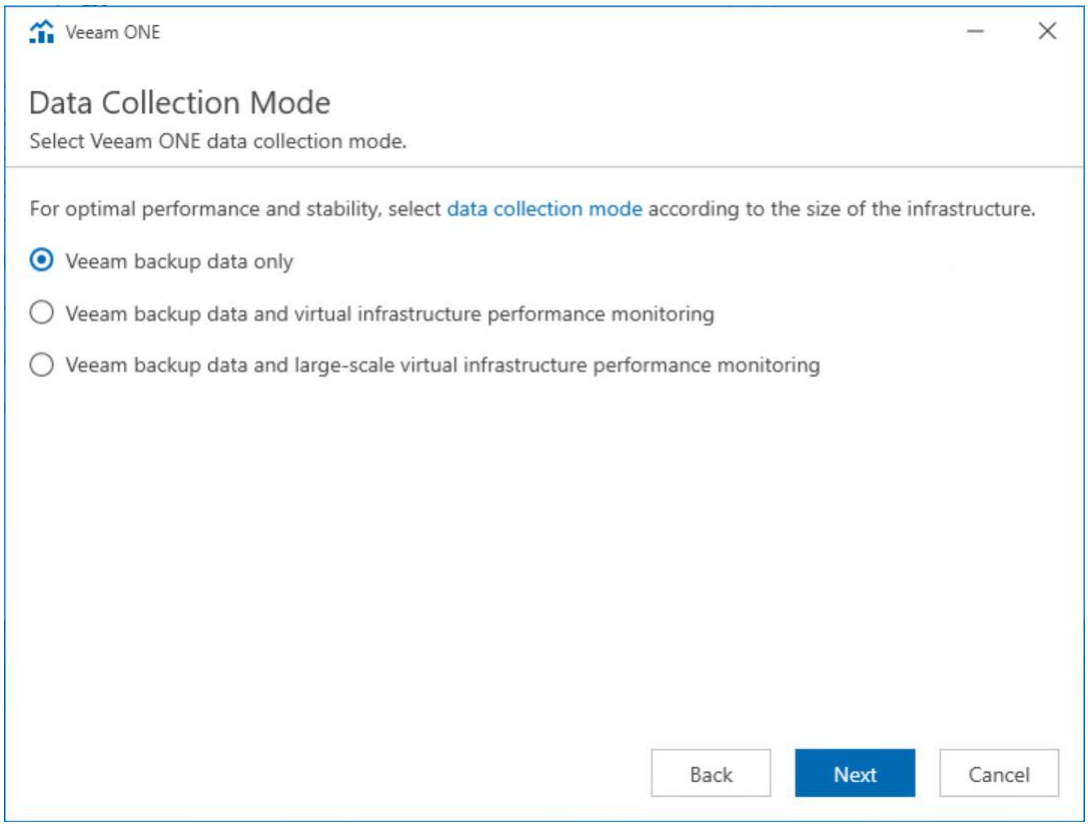
The **Veeam backup data and virtual infrastructure performance monitoring** modes are recommended for users who want to monitor and report on the virtual environment, Veeam Backup & Replication and Veeam Backup for Microsoft 365 infrastructures.

- **Veeam backup data and virtual infrastructure performance monitoring** mode is recommended for small to medium environments up to 100 hosts and 1500 VMs. In this mode, Veeam ONE collects all inventory, configuration and performance metrics, and makes collected data available in dashboards, reports and alarms.

  This mode provides the greatest data granularity level, but results in a greater load on the Veeam ONE server and a larger size of Veeam ONE database.

- **Veeam backup data and large-scale virtual infrastructure performance monitoring** mode is recommended for large environments with more than 100 hosts and 1500 VMs. In this mode, Veeam ONE collects all metrics required for alarms and reports.

  This mode results in a lower load on the Veeam ONE server and a smaller size of the Veeam ONE database.



Step 12. Specify Connection Ports

At the **Port Configuration** step of the wizard, specify connection settings for Veeam ONE components, Veeam ONE Web API and Veeam ONE agent:

- In the **Veeam ONE monitoring service port** field, type a number of the port that will be used to interact with Veeam ONE Monitoring service.

  The default port number is `2714`.

- In the **Veeam ONE reporting service port** field, type a number of the port that will be used to interact with Veeam ONE Reporting service.

  The default port number is `2742`.

- In the **Veeam ONE Web API port** field, type a number of the port that will be used by Veeam ONE Monitoring service and Web Services component to interact with Veeam ONE Reporting service.

  The default port number is `2741`.

- In the **Website port** field, type a number of the port that will be used to access the Veeam ONE Web Client through a web browser.

  The default port number is `1239`.

- In the **Veeam ONE agent port** field, type a number of the port that Veeam ONE Agent will use to collect data from connected Veeam Backup & Replication servers.

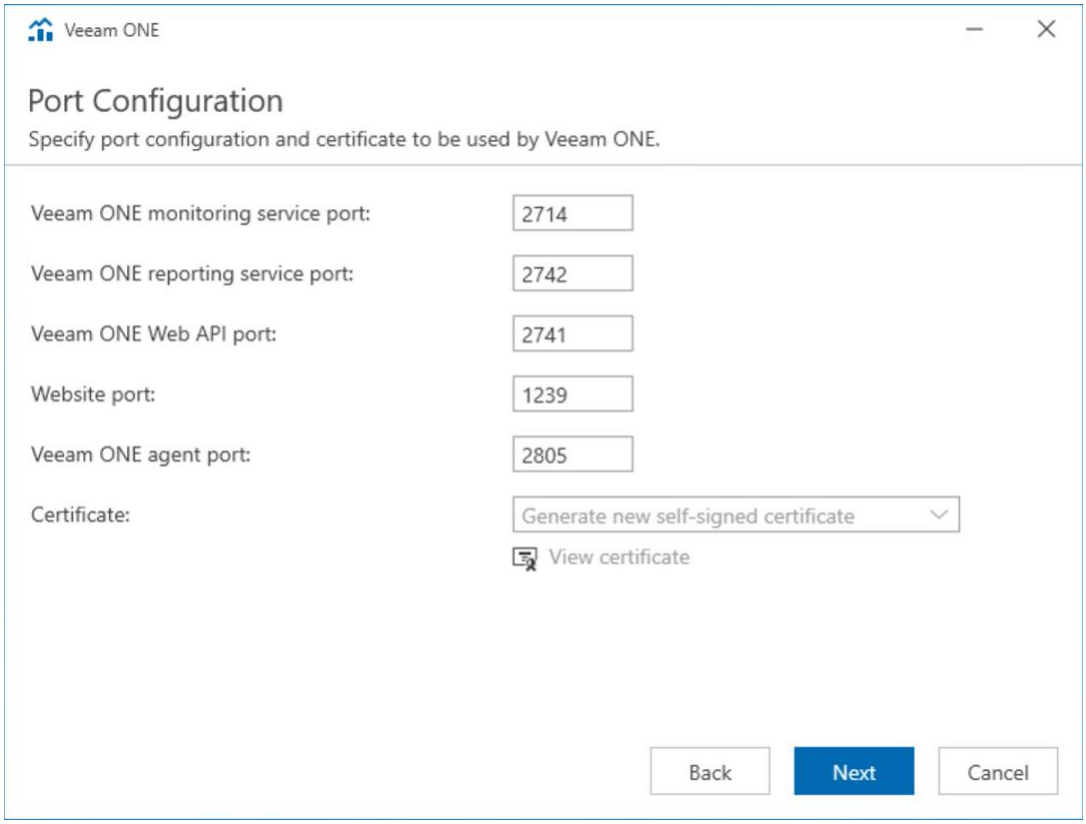
  The default port number is `2805`.

- In the **Certificate** list, choose a certificate that will be used to secure traffic between the web browser, Veeam ONE Web Services and Veeam ONE Reporting service.

  You can choose an existing certificate installed on the machine. If the setup wizard does not find an appropriate certificate to be used, it generates a self-signed certificate.

NOTE:

- If you generate or choose a self-signed certificate, you must configure a trusted connection between the Veeam ONE Web Client website and a web browser later. For details, see Configuring Trusted Connection.
- You can change the selected certificate after installation. For details on changing Veeam ONE Web Client website certificate, see Change Default Certificate. For details on changing Veeam ONE Reporting service certificate, see section Veeam ONE Server Settings of the Veeam ONE Monitoring Guide.

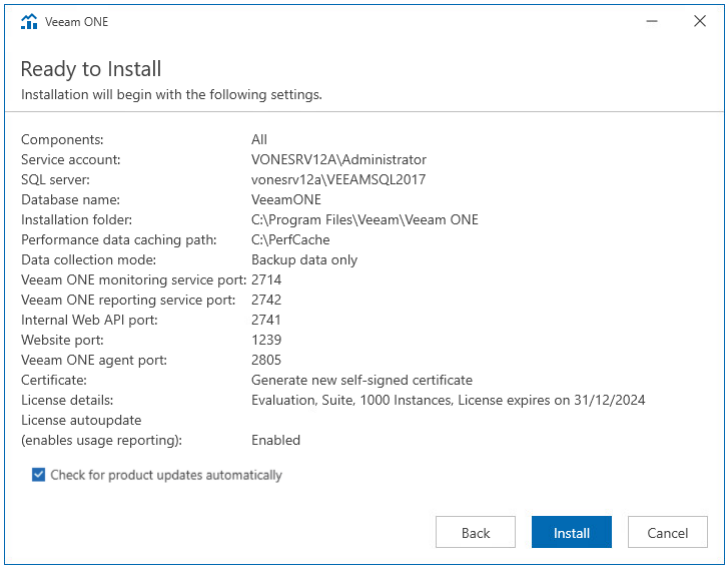


Step 13. Review Installation Summary

At the **Ready to Install** step of the wizard, review installation configuration to ensure that you have provided correct settings.

Select the C**heck for product updates automatically** check box if you want Veeam ONE to automatically check and download available updates.

Click **Install** to begin the installation.



Step 14. Add Veeam ONE Service Account to Veeam ONE Administrators Group

When Veeam ONE installation completes, the installer will prompt you to perform the logoff and logon procedure to create new user groups that will be used to accommodate user accounts for accessing Veeam ONE locally and remotely.

Check that the Veeam ONE service account is included in the *Veeam ONE Administrators* user group. If this account is not a member of the *Veeam ONE Administrators* user group, add it to the group manually.

For details on Veeam ONE user groups, see Security Groups.

Custom Installation

The custom installation scenario implies installing the Veeam ONE Server components (Monitoring service, Reporting service, Veeam ONE Web API) on one machine, and installing the Veeam ONE Web Services component (Veeam ONE Web Client) on another machine. You can also choose to install both components on a single machine in the course of a single installation session. If you choose to install both the Veeam ONE Server and Veeam ONE Web Services components, the custom deployment will mirror the typical, but will not include Veeam ONE Client. You must install Veeam ONE Client separately.

IMPORTANT!

- If you install the Veeam ONE Server and Veeam ONE Web Services components on separate machines, mind the following limitation: you cannot install the server part on the computer that is already hosting the client part, and conversely.
- If you migrate the Veeam ONE Server components to another machine, you must reinstall Veeam ONE Web Services and specify new connection settings at Step 9 of the installation wizard.

Custom installation is only available if you provide either evaluation or paid license. For Veeam ONE Community Edition, the custom installation option is not available. For details on the custom deployment scenario, see Custom Deployment.

The custom installation must proceed in the following order:

1. **Install Veeam ONE Server and set up the database**.

   Run the **Veeam ONE Setup** wizard on a machine that will host the Veeam ONE Server component. At this step, you must choose an existing Microsoft SQL Server instance, or install a new Microsoft SQL Server instance and specify the name of the database that will be created by the setup. For details, see Installing Veeam ONE Server.

2. **Install the Veeam ONE Web Services**.

   Run the **Veeam ONE Setup** wizard on a machine that will host the Veeam ONE Web Services component. For details, see Installing Veeam ONE Web Services.

3. **Install and configure Veeam ONE Client**.

   Run the **Veeam ONE Client** wizard to enable user access to the Veeam ONE monitoring functionality. If necessary, you can install several instances of Veeam ONE Client on separate machines to provide access to Veeam ONE Client for multiple users. For details, see Installing Veeam ONE Client.

Installing Veeam ONE Server

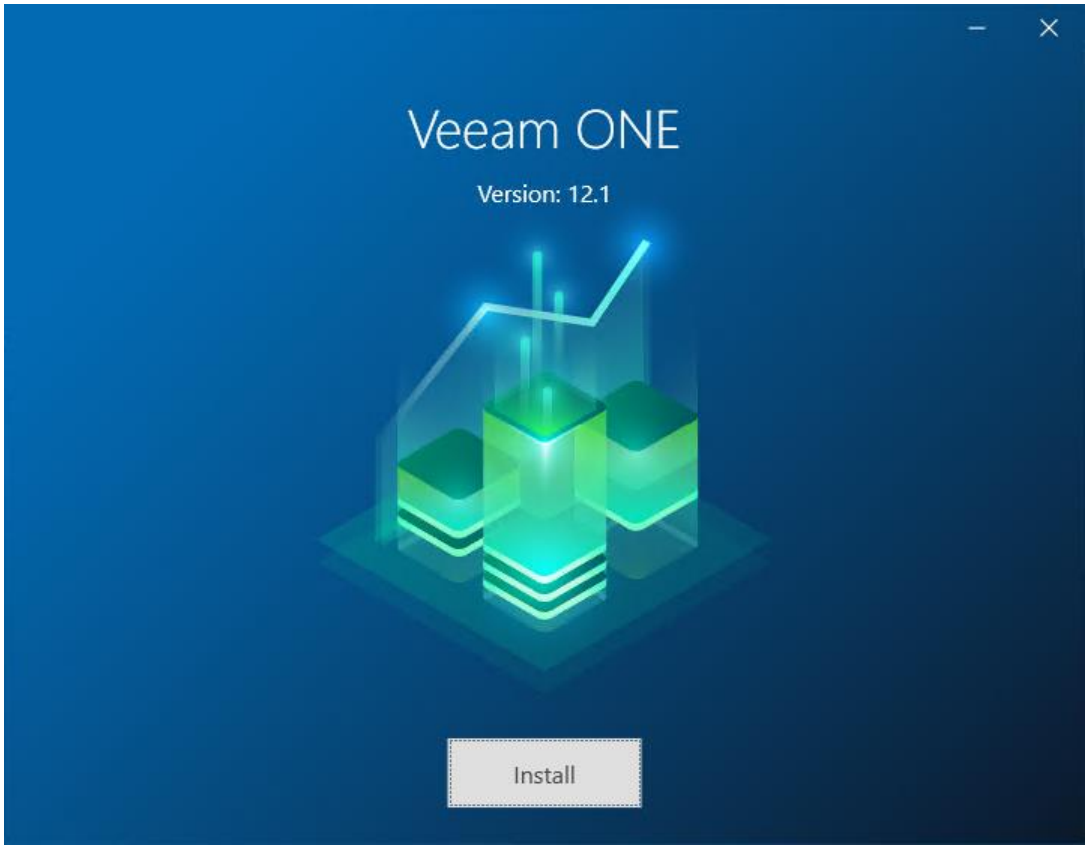
To install Veeam ONE Server, follow these steps:

1. Launch Splash Window.
2. Select Component.
3. Accept License Agreements.
4. Choose License Method.
5. Specify Service Account Credentials.
6. Perform System Configuration Check.
7. Review Installation Summary
8. Select Architectural Components.
9. Choose Microsoft SQL Server.
10. Choose Data Location.
11. Choose Data Collection Mode.
12. Specify Connection Ports.
13. Review Installation Summary.
14. Add Veeam ONE Service Account to Veeam ONE Administrators Group.

Step 1. Launch Splash Window

After you mount or insert the disk with Veeam ONE installation image, **Autorun** will open a splash screen with installation options. On the splash window, click **Install** to launch the **Veeam ONE Setup** wizard.

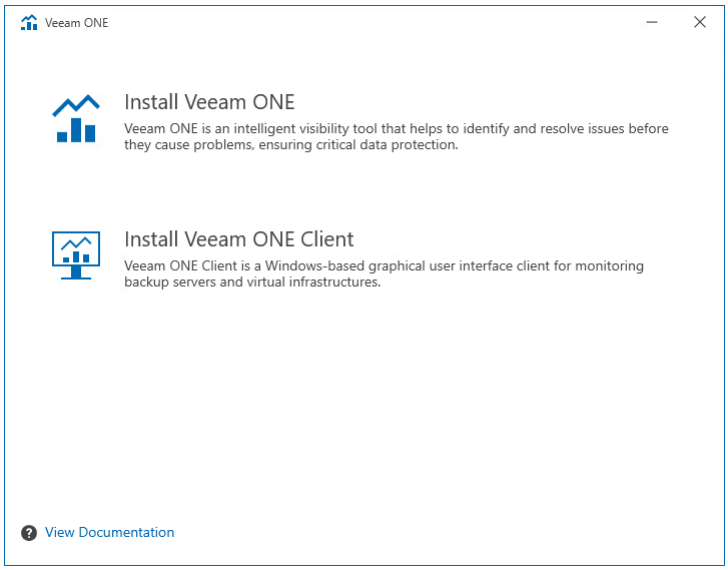
If **Autorun** is disabled, run the `Setup.exe` file from the installation image. Alternatively, you can right-click the new disk in **My Computer** and select **Execute Veeam ONE Autorun**.



Step 2. Select Component

At the **Select Veeam ONE Component** step of the wizard, select **Install Veeam ONE**.

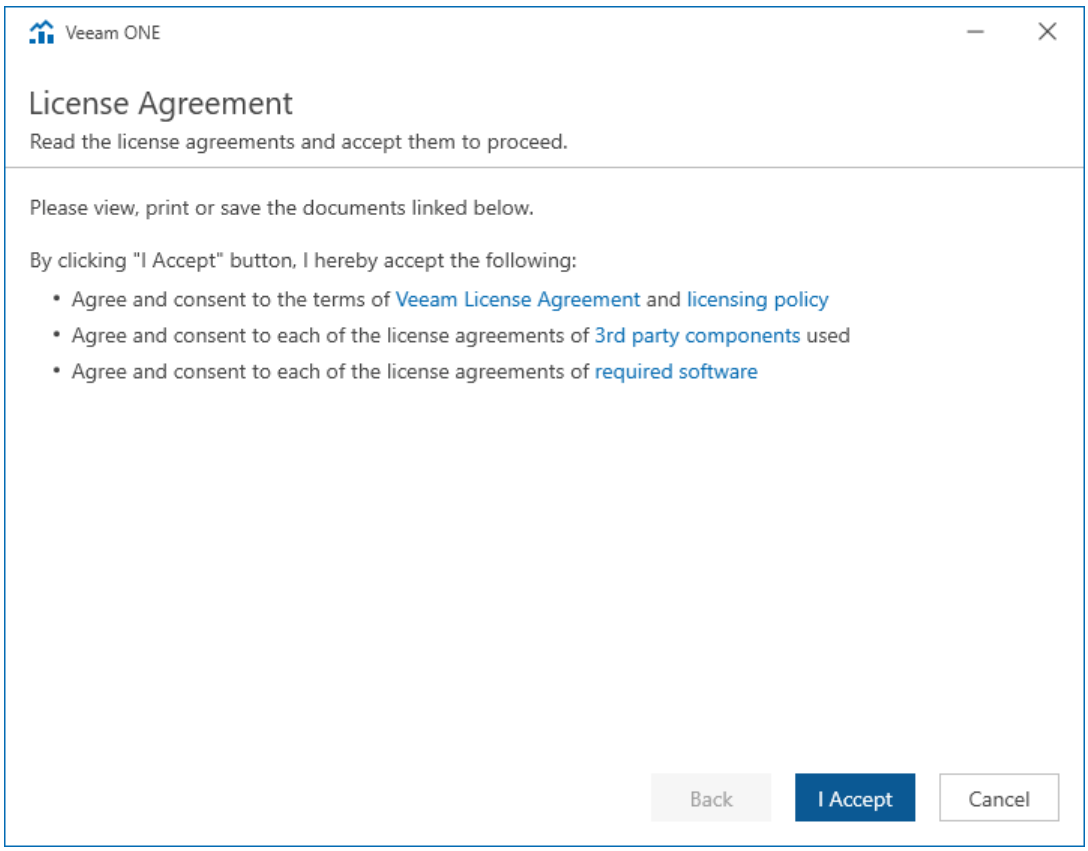
To open Veeam Help Center from the setup wizard, click **View Documentation**.



Step 3. Accept License Agreements

At the **License Agreement** step of the wizard, read and accept Veeam license agreement, licensing policy, 3rd party components and required software license agreements. You will not be able to continue installation until you accept license agreements.

To read the terms of the license agreements, click the individual links.

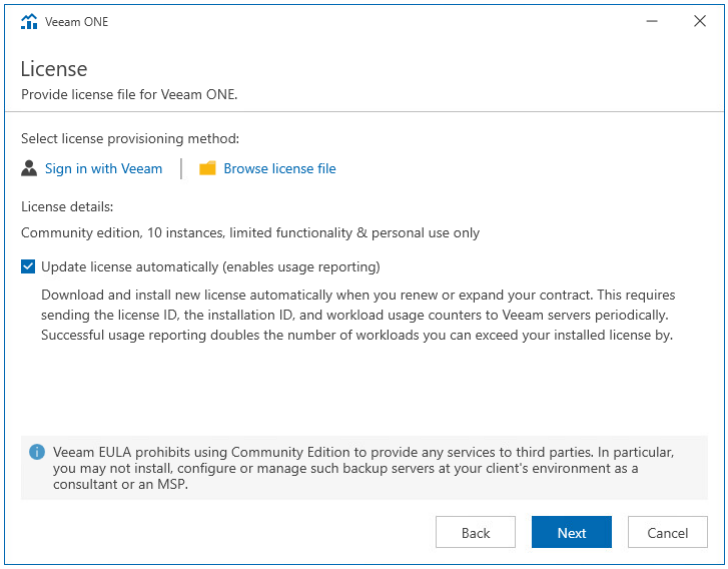


Step 4. Provide License

At the **License** step of the wizard, click one of the two options to provide a license:

- **Sign in with Veeam** – open the Veeam account Sign in screen to log in with your Veeam account credentials if you already have a registered license on your account.
- **Browse license file** – specify the local path to the license file.

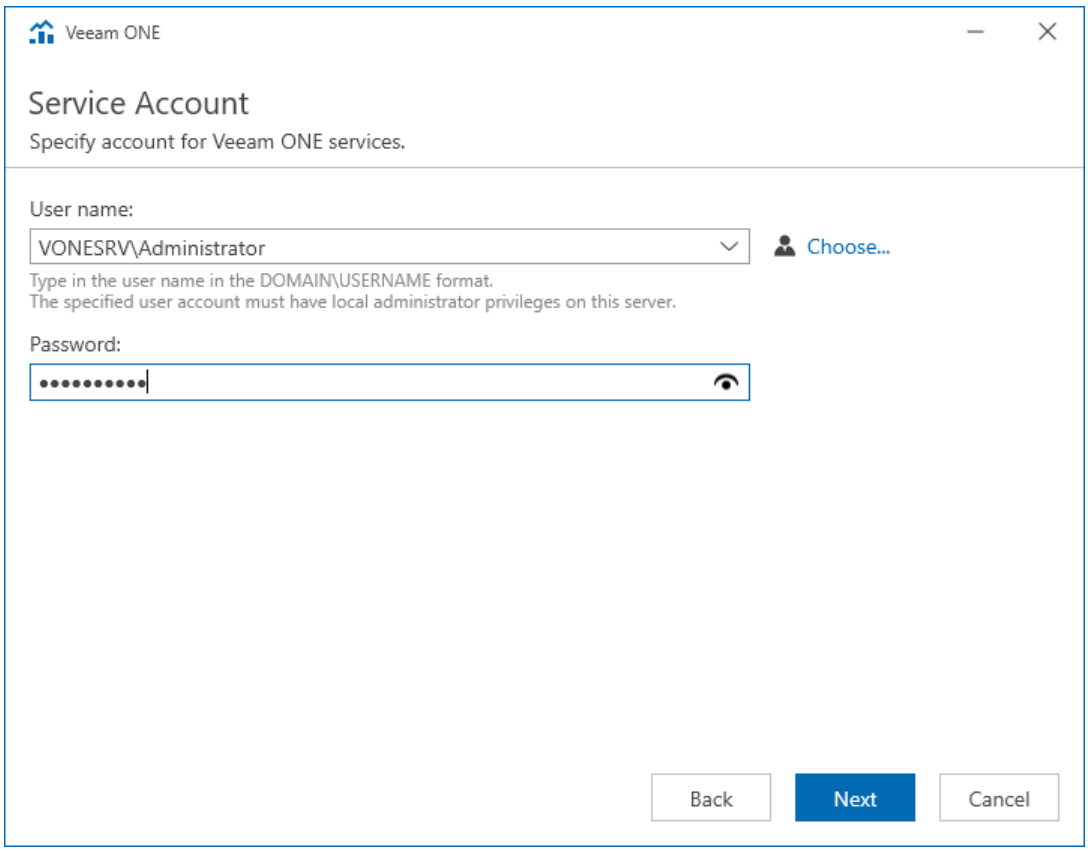
To install new licenses automatically when you renew or expand your contract, select the **Update license automatically** check box. If you enable the automatic license update, and therefore enable usage reporting, you will double the number of workloads by which you can exceed your installed license. Note that for *Evaluation* and *NFR* licenses automatic license update must be enabled.



Step 5. Specify Service Account Credentials

At the **Service Account** step of the wizard, specify credentials of the account under which the Veeam ONE services will run. The user name must be specified in the *DOMAIN|USERNAME* format. Alternatively click **Choose** to select an existing user account.

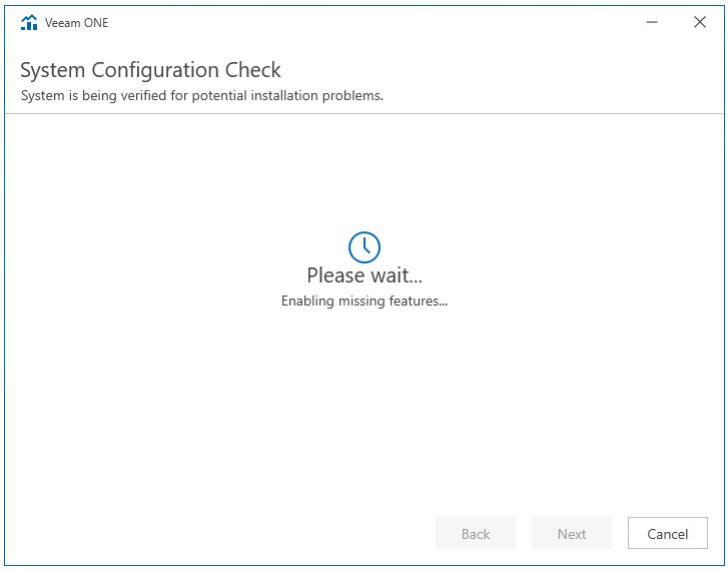
For details on required permissions for the service account, see Veeam ONE Service Account.



Step 6. Perform System Configuration Check

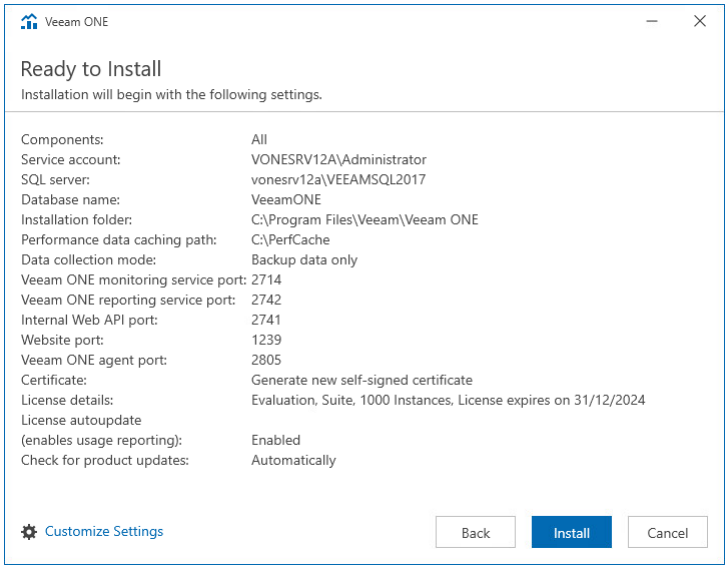
Before proceeding with the installation, the installer will perform system configuration check to determine if all prerequisite software is available on the machine. To learn what software is required for Veeam ONE, see System Requirements.

If some of the required software components are missing, the setup wizard will enable the missing software components and features automatically.



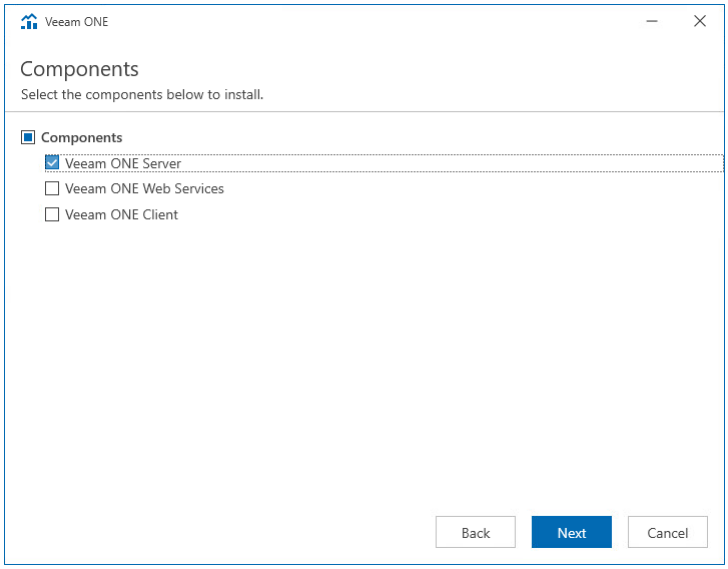
Step 7. Review Installation Summary

At the **Ready to Install** step of the wizard, review installation configuration and click **Customize Settings**.



Step 8. Select Architectural Components

At the **Components** step of the wizard, choose to install **Veeam ONE Server** only.



Step 9. Choose Microsoft SQL Server

At the **SQL Server Instance** step of the wizard, choose a Microsoft SQL Server instance that will host the Veeam ONE database. If you are installing Veeam ONE Server and Veeam ONE Web Services on different machines, make sure that both components share a common database.

To install Veeam ONE Server, select Microsoft SQL Server as follows:

- If you do not have a Microsoft SQL Server instance that you can use for Veeam ONE, select the **Install new instance of SQL Server** option.

  If this option is selected, the setup will install Microsoft SQL Server 2017 Express locally, on the computer where you are installing Veeam ONE.

  > **NOTE:**
  > - If a Microsoft SQL Server instance that meets Veeam ONE system requirements is detected on the machine, you can only use the existing local Microsoft SQL Server instance or choose a one that runs remotely. The option to install a new Microsoft SQL instance will be unavailable in this case.
  > - If you choose to host Veeam ONE database on Microsoft SQL Server Express, consider is a 10 GB database size limitation for this edition. For details, see Editions and Supported Features for SQL Server.

- If you intend to use an existing local or remote Microsoft SQL Server instance, select the **Use existing instance of SQL Server** option and choose a local Microsoft SQL Server instance or browse to a Microsoft SQL Server instance running remotely. You can enter the address of the preferred Microsoft SQL Server manually or use the **Browse** button to choose among available remote instances.

  In the **Database name** field, specify the name of the database that will be created by Veeam ONE. Provide credentials for the account that will be used by Veeam ONE components to access the database. You can enter credentials explicitly or use Windows authentication credentials of the Veeam ONE service account to connect to the Microsoft SQL Server. For details on required permissions for the account, see Connection to Microsoft SQL Server.

- If you already have an existing Veeam ONE database that you want to use in your deployment, select the **Use existing instance of SQL Server** option and choose the Microsoft SQL Server instance that hosts the database. This can be a database that you have previously created with a SQL script. In the **Database name** field, specify the name of the database.

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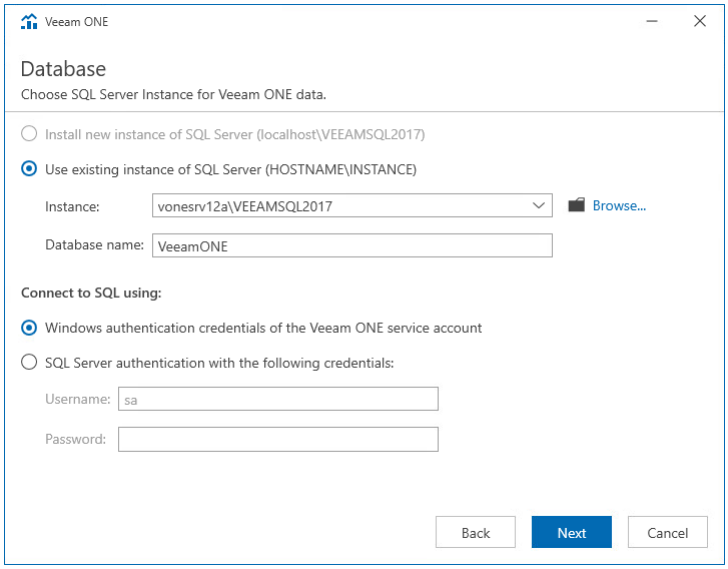

Step 10. Choose Data Location

In the **Installation path**, choose the installation directory. In the typical installation mode, the setup installs all components to a single directory and creates a subdirectory for every Veeam ONE component.

In the **Veeam ONE Client performance cache path**, choose a directory where the performance cache must be located.

Performance cache is space on disk to which Veeam ONE stores real-time performance data, as this data is collected. Performance data stored in cache is used for Veeam ONE Client dashboards and views. Disk-based performance cache allows significantly decrease RAM utilization on the machine that runs the Veeam ONE Server component.

By default, the performance cache is stored to the `C:\PerfCache` folder. To store the cache to a different folder, click **Browse** next to the **Path** field and specify a path to the new folder.

When choosing a location for performance cache, consider the following recommendations:

- Make sure that the disk where the performance cache is located can quickly complete read and write requests. Do not locate the cache remotely in networks with high latency values.
- For large monitoring environments, place the performance cache on an SSD local to the machine where the Veeam ONE Server component runs. For small and medium monitoring environments, a HDD is normally enough.
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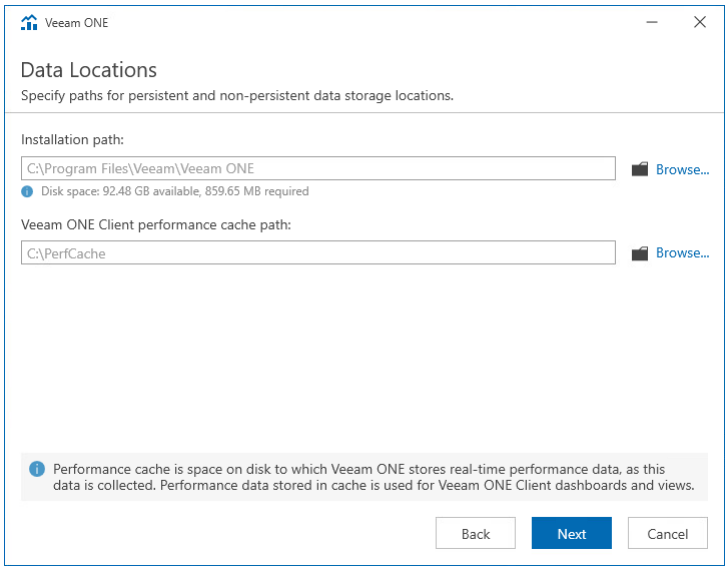

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Step 11. Choose Data Collection Mode

At the **Data Collection Mode** step of the wizard, choose the mode in which Veeam ONE will collect data from virtualization and Veeam Backup & Replication servers.

Data collection mode determines what metrics Veeam ONE will collect, and specifies the product configuration in a number of areas. Choosing an appropriate data collection mode allows you to optimize monitoring and reporting performance and improve user experience in Veeam ONE. To learn the difference between the data collection modes, see Appendix B. Data Collection Modes.

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This mode results in the least possible size of the Veeam ONE database and the lowest load on the Veeam ONE server.

Veeam Backup Data and Virtual Infrastructure Performance Monitoring

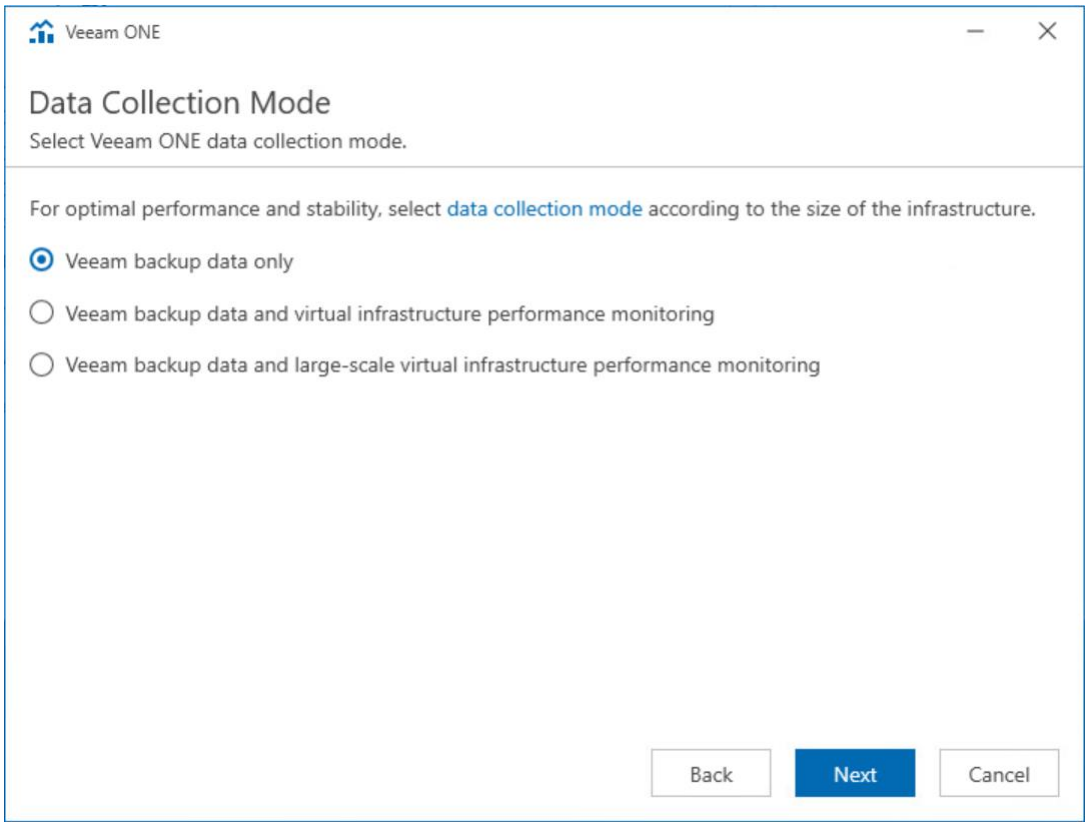
The **Veeam backup data and virtual infrastructure performance monitoring** modes are recommended for users who want to monitor and report on the virtual environment, Veeam Backup & Replication and Veeam Backup for Microsoft 365 infrastructures.

- **Veeam backup data and virtual infrastructure performance monitoring** mode is recommended for small to medium environments up to 100 hosts and 1500 VMs. In this mode, Veeam ONE collects all inventory, configuration and performance metrics, and makes collected data available in dashboards, reports and alarms.

  This mode provides the greatest data granularity level, but results in a greater load on the Veeam ONE server and a larger size of Veeam ONE database.

- **Veeam backup data and large-scale virtual infrastructure performance monitoring** mode is recommended for large environments with more than 100 hosts and 1500 VMs. In this mode, Veeam ONE collects all metrics required for alarms and reports.

  This mode results in a lower load on the Veeam ONE server and a smaller size of the Veeam ONE database.



Step 12. Specify Connection Ports

At the **Port Configuration** step of the wizard, specify connection settings for Veeam ONE Monitoring Service, Veeam ONE Reporting Service, internal Web API and Veeam ONE agent:

- In the **Veeam ONE monitoring service port** field, type a number of the port that will be used to interact with Veeam ONE Monitoring service.

  The default port number is `2714`.

- In the **Veeam ONE reporting service port** field, type a number of the port that will be used to interact with Veeam ONE Reporting service.

  The default port number is `2742`.

- In the **Internal Web API port** field, type a number of the port that will be used by Veeam ONE Monitoring service and Web Services component to interact with Veeam ONE Reporting service.

  The default port number is `2741`.

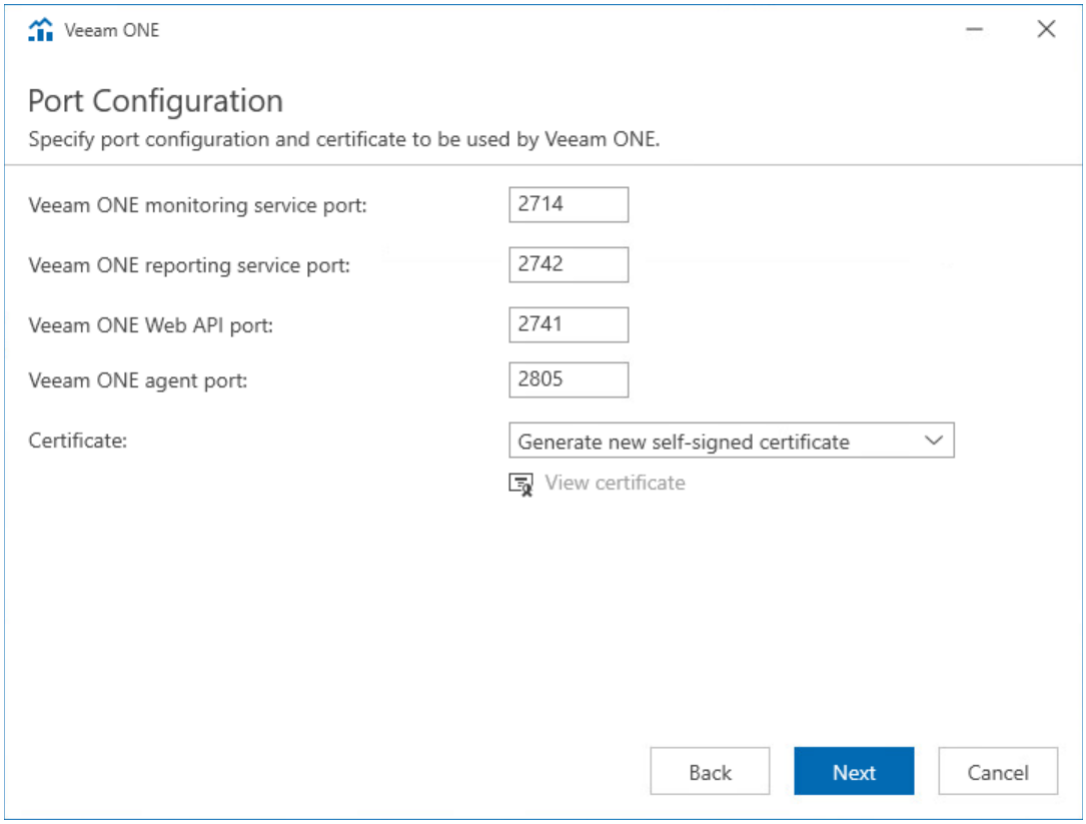
- In the **Veeam ONE agent port** field, type a number of the port that Veeam ONE Agent will use to collect data from connected Veeam Backup & Replication servers.

  The default port number is `2805`.

- In the **Certificate** list, choose a certificate that will be used to secure traffic between the web browser, Veeam ONE Web Services and Veeam ONE Reporting service.

  You can choose an existing certificate installed on the machine. If the setup wizard does not find an appropriate certificate to be used, it generates a self-signed certificate.

  You can change the certificate later in Veeam ONE Settings utility. For details, see section Veeam ONE Server Settings of the Veeam ONE Monitoring Guide.

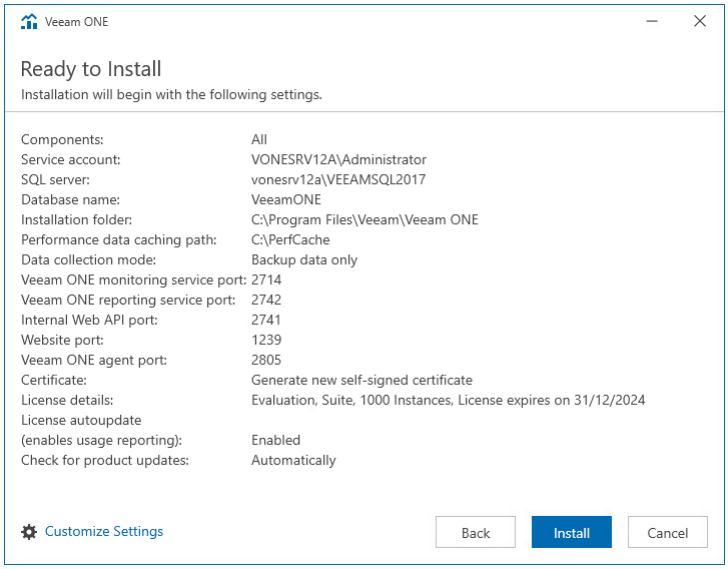


Step 13. Review Installation Summary

At the **Ready to Install** step of the wizard, review installation configuration to ensure that you have provided correct settings.

Select the **Check for product updates automatically** check box if you want Veeam ONE to automatically check and download available updates.

Click **Install** to begin the installation.



When the installation completes, click **Finish** to close the wizard.

Step 14. Add Veeam ONE Service Account to Veeam ONE Administrators Group

When Veeam ONE installation completes, the installer will prompt you to perform the logoff and logon procedure to create new user groups that will be used to accommodate user accounts for accessing Veeam ONE locally and remotely.

Check that the Veeam ONE service account is included in the *Veeam ONE Administrators* user group on the machines where the Veeam ONE Server is installed. If this account is not a member of the *Veeam ONE Administrators* user group, add it to the group manually.

For details on Veeam ONE user groups, see Security Groups.

Installing Veeam ONE Web Services

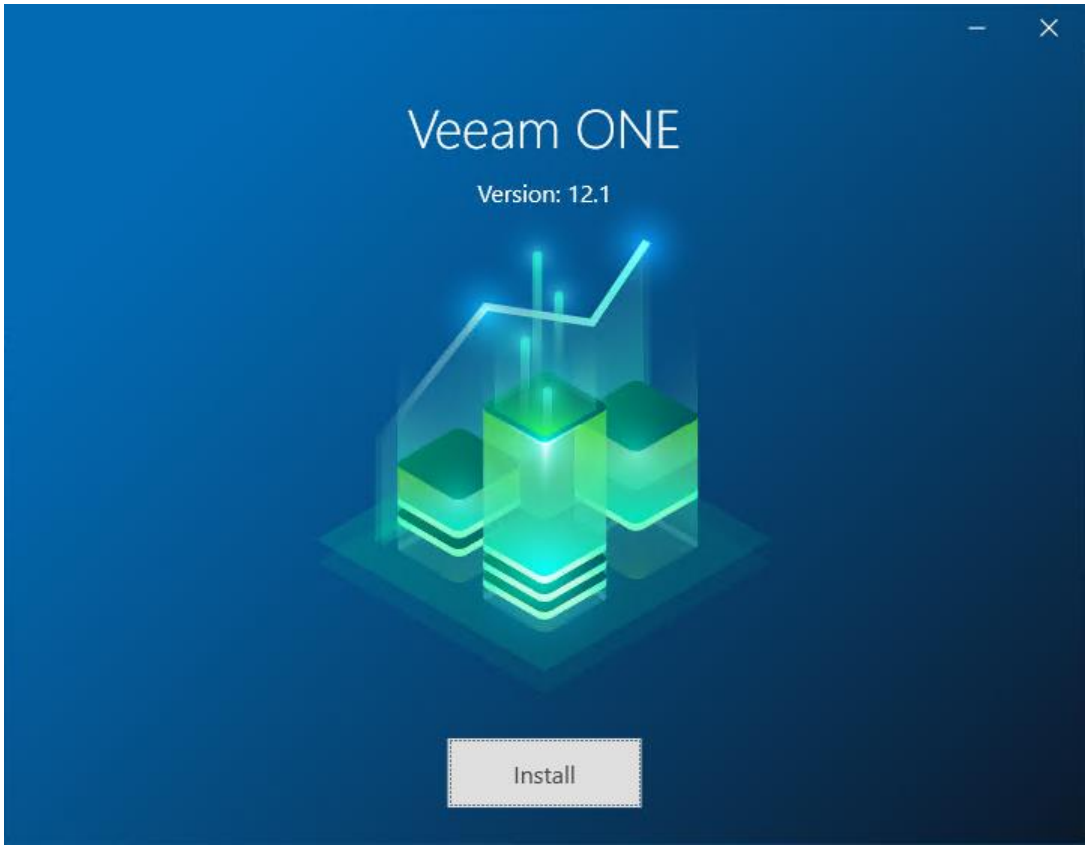
To install Veeam ONE Web Services, follow these steps:

1. Launch the splash window.
2. Select Component.
3. Accept License Agreements.
4. Provide License.
5. Specify Service Account
6. Perform System Configuration Check.
7. Review Installation Summary
8. Select Architectural Components.
9. Choose Data Location.
10. Specify Connection Ports.
11. Specify Veeam ONE Server Connection Details.
12. Review Installation Summary.

Step 1. Launch Splash Window

After you mount or insert the disk with Veeam ONE installation image, **Autorun** will open a splash screen with installation options. On the splash window, click **Install** to launch the **Veeam ONE Setup** wizard.

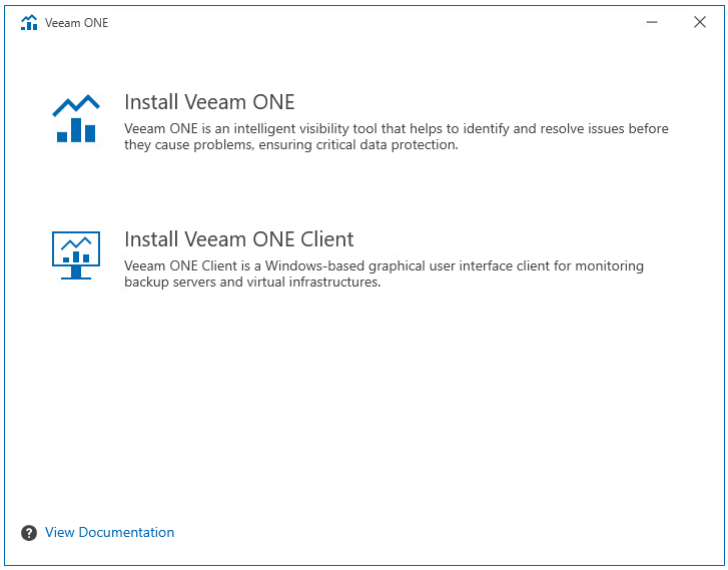
If **Autorun** is disabled, run the `Setup.exe` file from the installation image. Alternatively, you can right-click the new disk in **My Computer** and select **Execute Veeam ONE Autorun**.



Step 2. Select Component

At the **Select Veeam ONE Component** step of the wizard, select **Install Veeam ONE**.

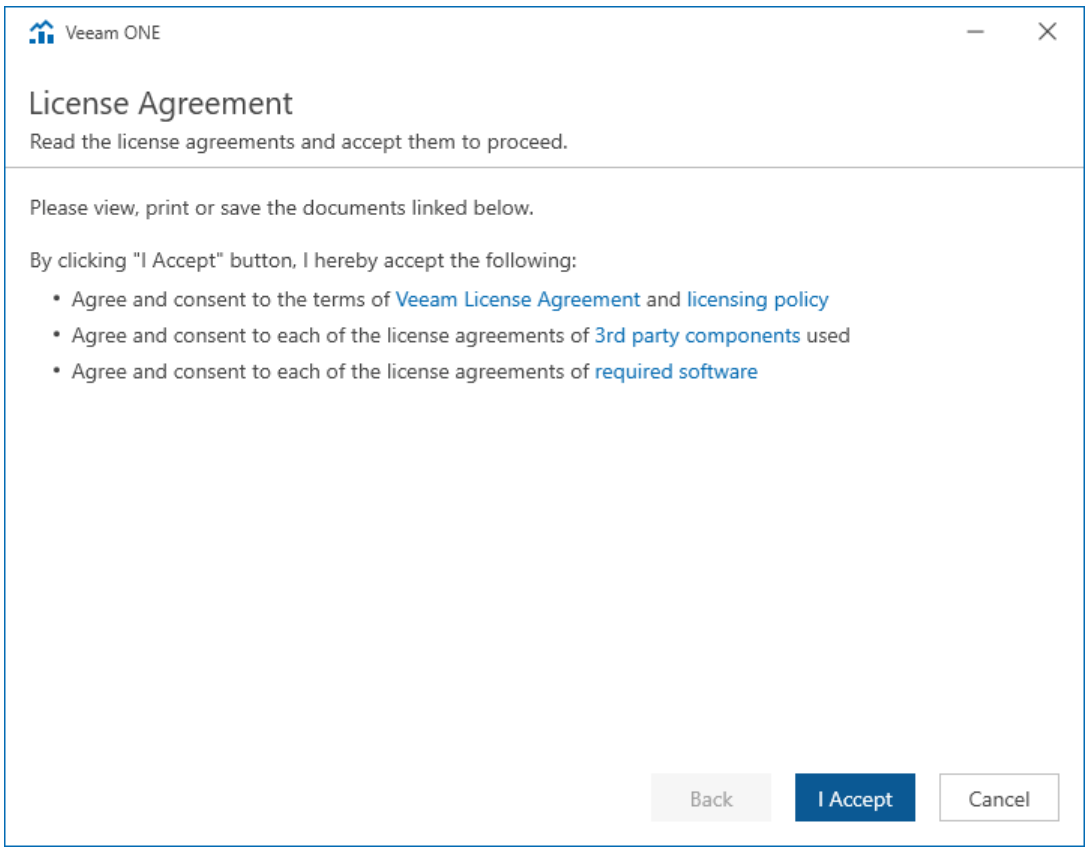
To open Veeam Help Center from the setup wizard, click **View Documentation**.



Step 3. Accept License Agreements

At the **License Agreement** step of the wizard, read and accept Veeam license agreement, licensing policy, 3rd party components and required software license agreements. You will not be able to continue installation until you accept license agreements.

To read the terms of the license agreements, click the individual links.

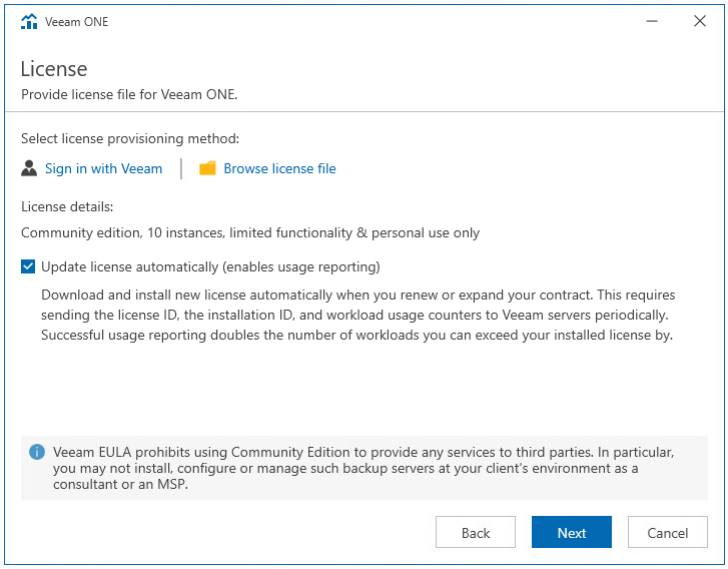


Step 4. Provide License

At the **License** step of the wizard, click one of the two options to provide a license:

- **Sign in with Veeam** – open the Veeam account Sign in screen to log in with your Veeam account credentials if you already have a registered license on your account.
- **Browse license file** – specify the local path to the license file.

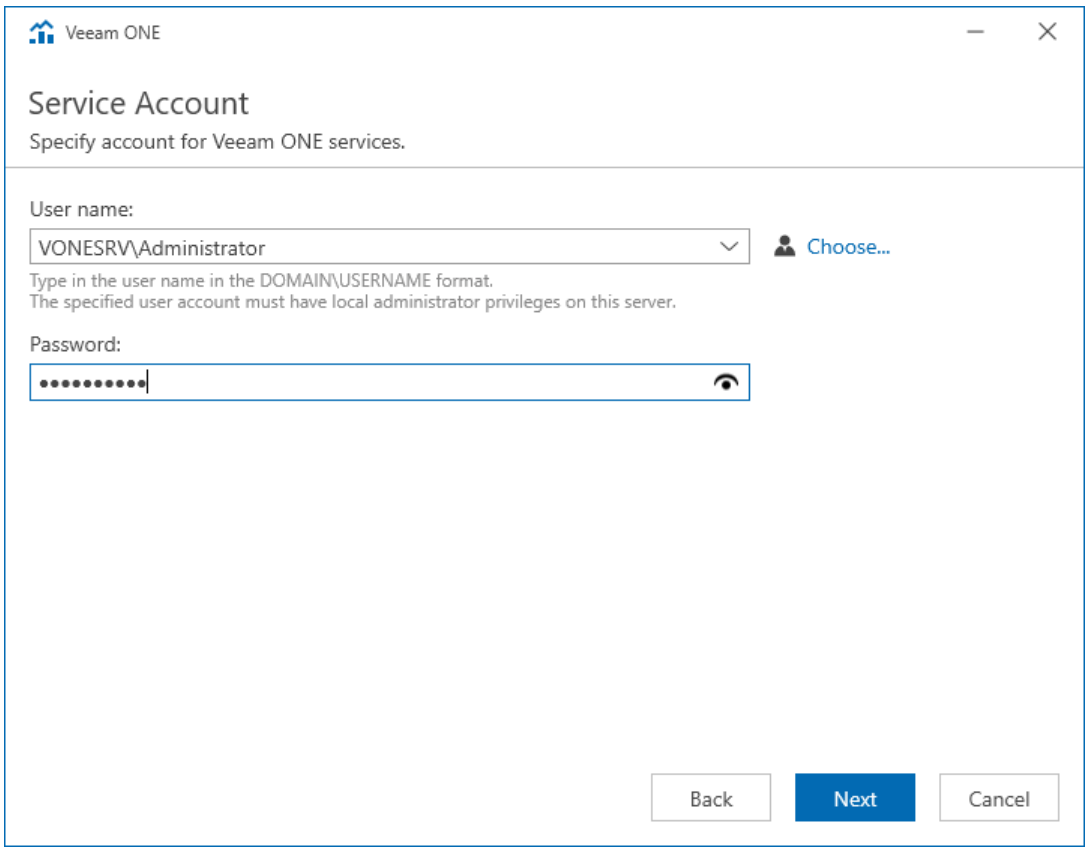
To install new licenses automatically when you renew or expand your contract, select the **Update license automatically** check box. If you enable the automatic license update, and therefore enable usage reporting, you will double the number of workloads by which you can exceed your installed license. Note that for *Evaluation* and *NFR* licenses automatic license update must be enabled.



Step 5. Specify Service Account

At the **Service Account** step of the wizard, specify credentials of the account under which the Veeam ONE services will run. The user name must be specified in the *DOMAIN|USERNAME* format. Alternatively click **Choose** to select an existing user account.

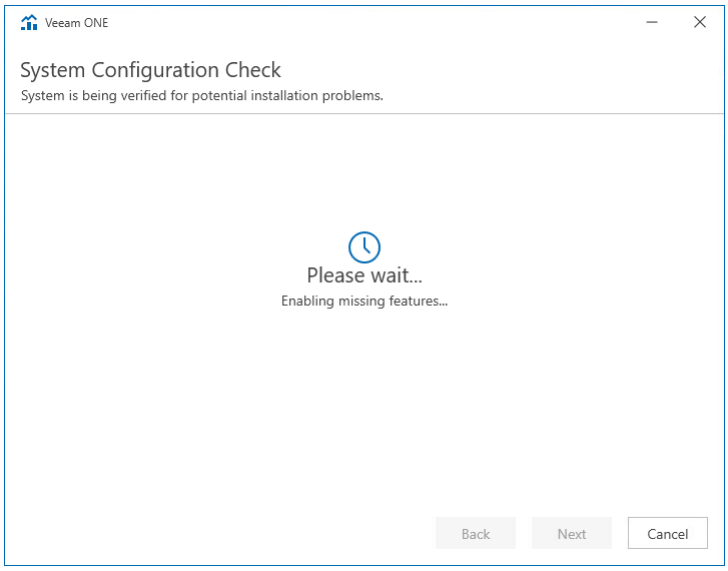
For details on required permissions for the service account, see Veeam ONE Service Account.



Step 6. Perform System Configuration Check

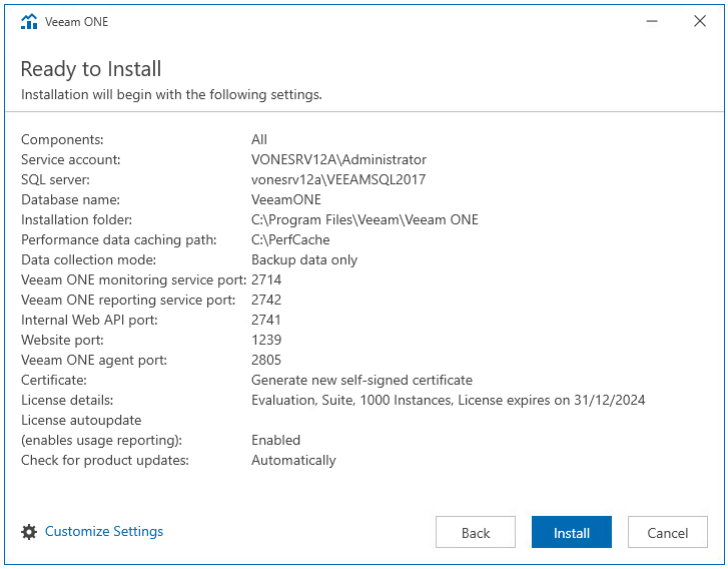
Before proceeding with the installation, the installer will perform system configuration check to determine if all prerequisite software is available on the machine. To learn what software is required for Veeam ONE, see System Requirements.

If some of the required software components are missing, the setup wizard will enable the missing software components and features automatically.



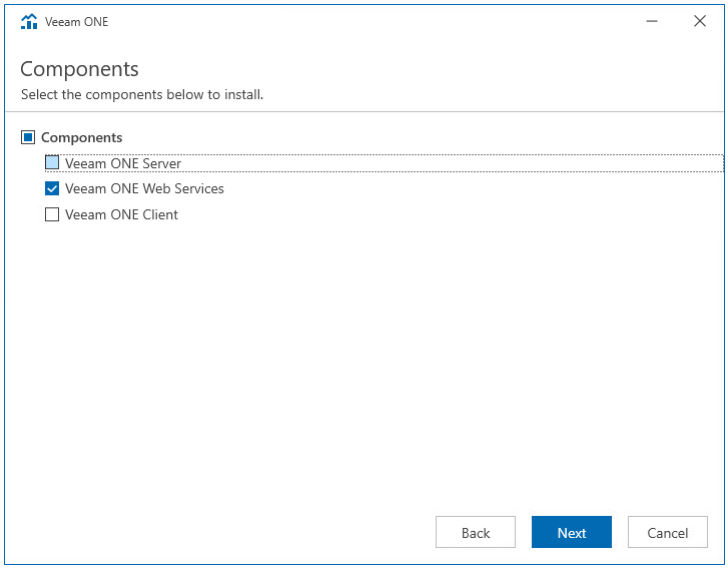
Step 7. Review Installation Summary

At the **Ready to Install** step of the wizard, review installation configuration and click **Customize Settings**.



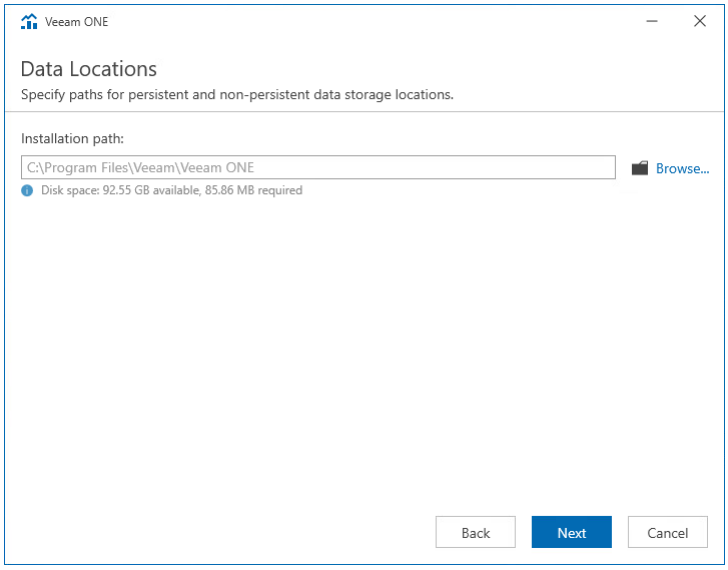
Step 8. Select Architectural Components

At the **Components** step of the wizard, choose to install **Veeam ONE Web Services** only.



Step 9. Choose Data Location

To change the installation directory, click **Browse** and select the location where you want to install Veeam ONE Web Services.



Step 10. Specify Connection Ports

At the **Port Configuration** step of the wizard, specify connection settings for Veeam ONE Web Client:

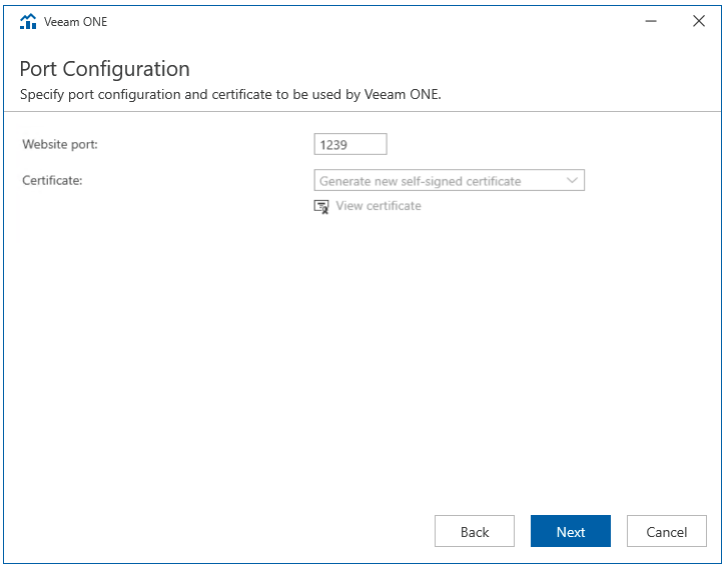
- In the **Website port** field, type a number of the port that will be used to access the Veeam ONE Web Client through a web browser.

  The default port number is `1239`.

- In the **Certificate** list, choose a certificate that will be used to secure traffic between the Veeam ONE Web Client and a web browser.

  You can choose an existing certificate installed on the machine or select the setup wizard to generate a self-signed certificate.

  > **NOTE:**
  > - If you generate or choose a self-signed certificate, you must configure a trusted connection between the Veeam ONE Web Client and a web browser later. For details, see Configuring Trusted Connection.
  > - You can change the selected certificate after installation. For details, see Change Default Certificate.



Step 11. Specify Veeam ONE Server Connection Details

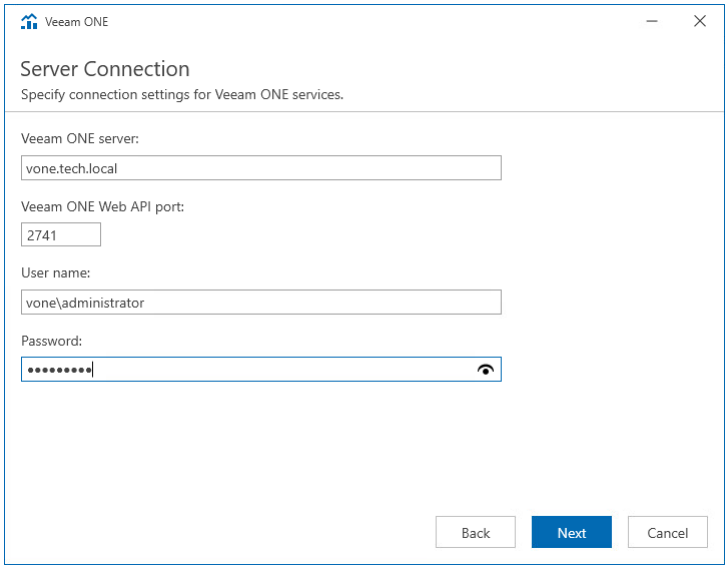
At the **Server Connection** step of the wizard, specify settings that the Web Services component must use to connect to the Server component:

- In the **Veeam ONE server** field, specify a FQDN of a machine on which you have installed the Veeam ONE Server component.
- In the **Veeam ONE Web API port** field, specify the number of a port that the Web Services component will use to communicate with the Veeam ONE Web API component.

  The default port number is `2741`.
- In the **Username** and **Password** fields, specify credentials of a user under which Veeam ONE Web Services will connect to Veeam ONE Server and configure it during installation.

  The user must be a member of *Veeam ONE Administrators* security group on the machine where Veeam ONE Server is installed.

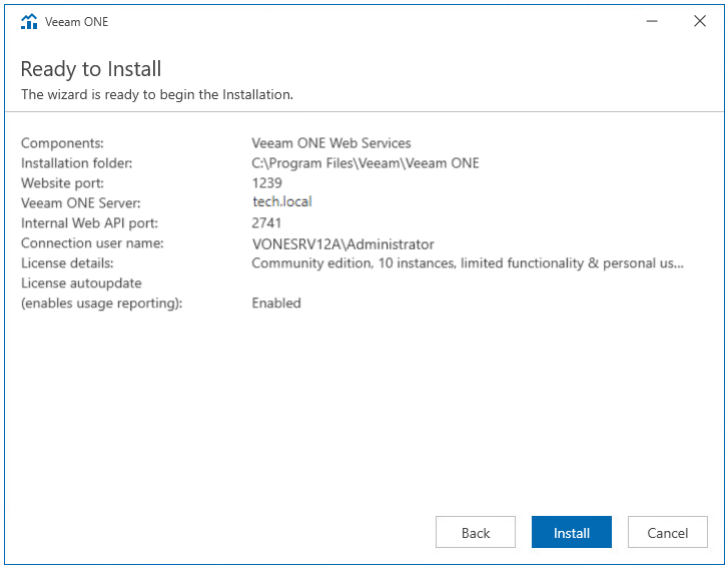
  The user name must be specified in the *DOMAIN|USERNAME* format.



Step 12. Review Installation Summary

At the **Ready to Install** step of the wizard, review installation configuration to ensure that you have provided correct settings.

Click **Install** to begin the installation.



When the installation completes, click **Finish** to close the wizard.

Installing Veeam ONE Client

Veeam ONE Client is the client part that allows users to access Veeam ONE monitoring functionality and work with alarms, dashboards and performance charts.

- In the course of all-in-one installation, Veeam ONE Client is installed with other Veeam ONE components. If you want to provide remote access to Veeam ONE monitoring functionality, you can install additional instances of Veeam ONE Client on user workstations.
- In the course of custom installation, Veeam ONE Client is not installed. To be able to access Veeam ONE monitoring functionality, you must install one or more instances of Veeam ONE Client.

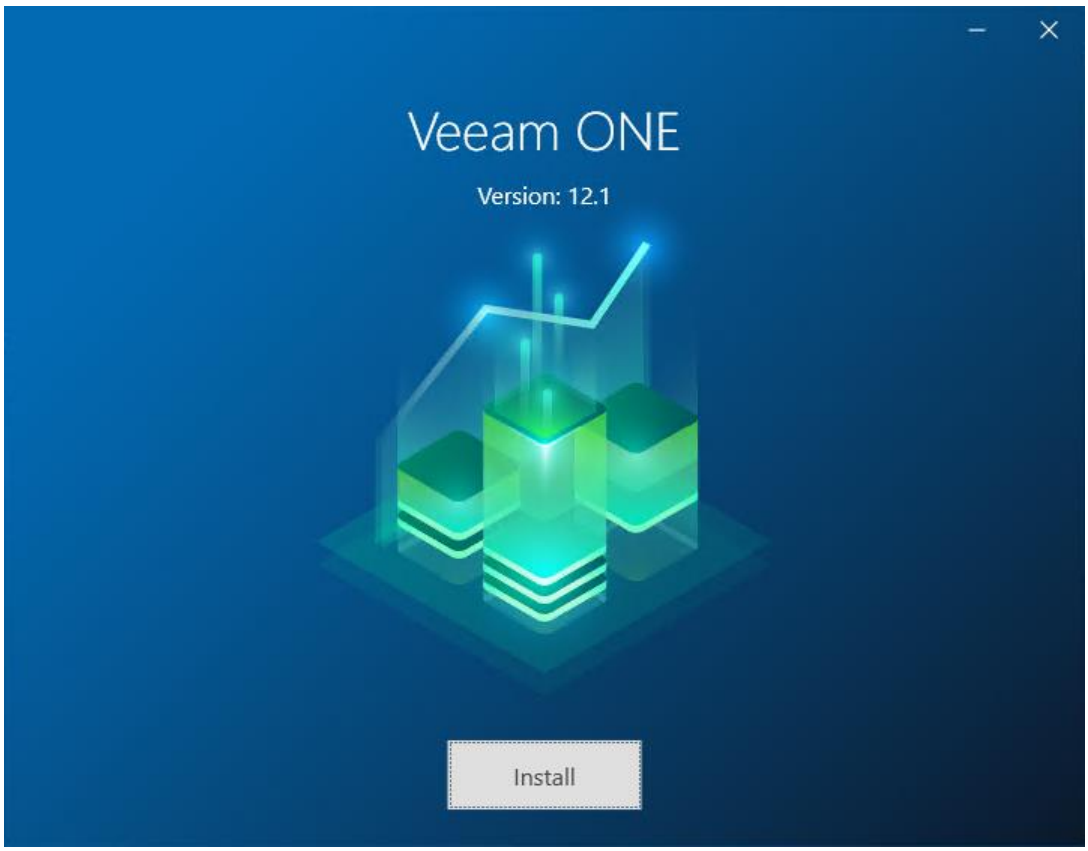
> **NOTE:**
>
> Mind the following:
>
> - Before installing Veeam ONE Client, make sure that you have already installed the Veeam ONE Server component.
> - You cannot install Veeam ONE Client using GPO or System Center Configuration Manager (SCCM).

To install Veeam ONE Client, follow these steps.

Step 1. Launch Splash Window

After you mount or insert the disk with Veeam ONE installation image, **Autorun** will open a splash screen with installation options. On the splash window, click **Install** to launch the **Veeam ONE Setup** wizard.

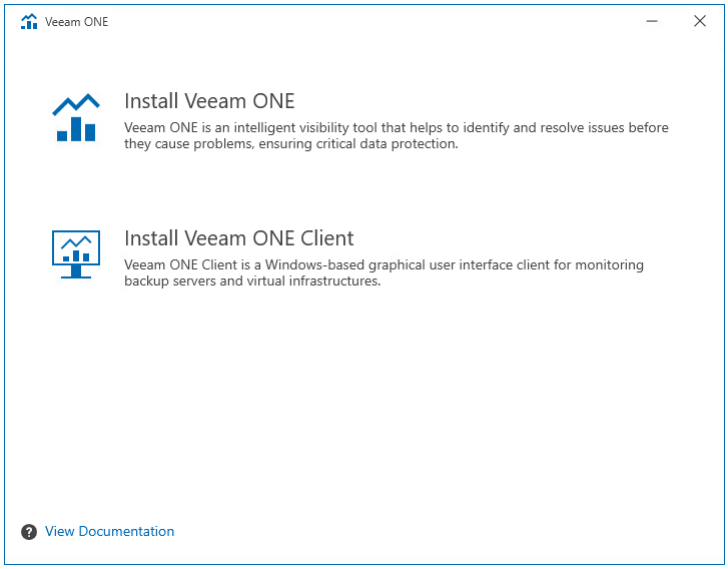
If **Autorun** is disabled, run the `Setup.exe` file from the installation image. Alternatively, you can right-click the new disk in **My Computer** and select **Execute Veeam ONE Autorun**.



Step 2. Select Component

At the select Veeam ONE component step of the wizard, select **Install Veeam ONE Client**.

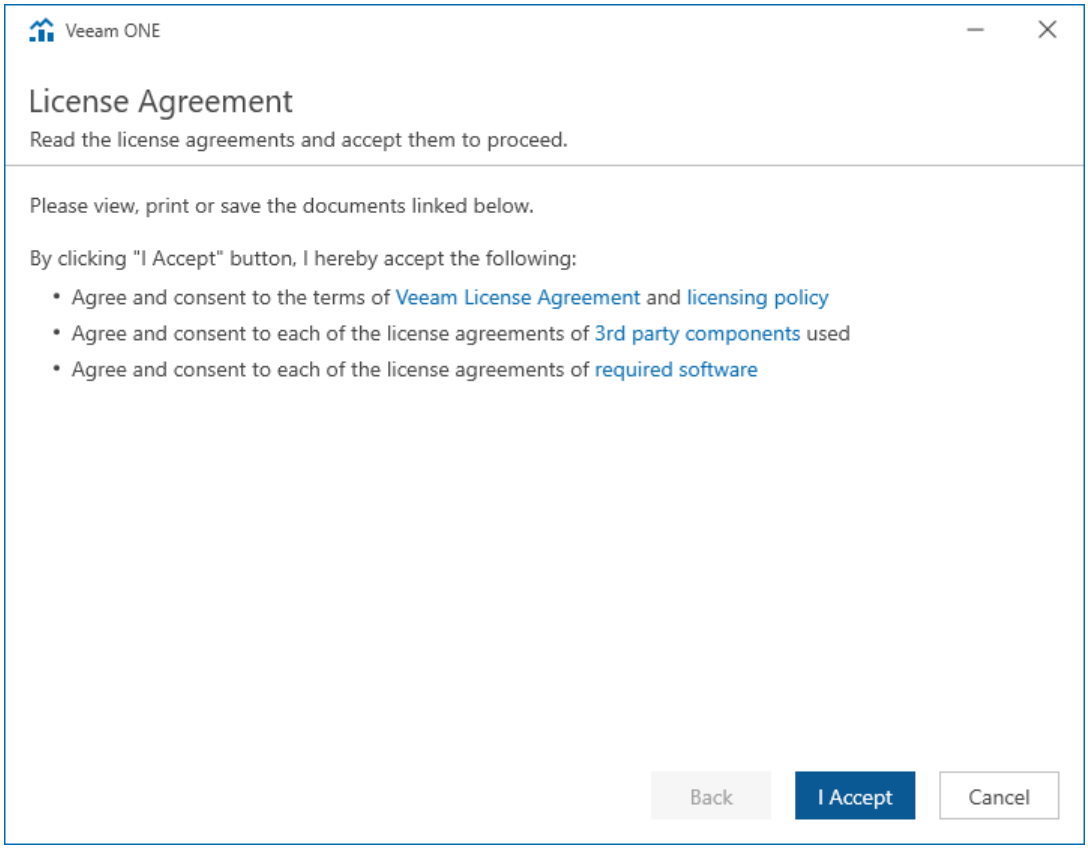
To open Veeam Help Center from the setup wizard, click **View Documentation**.



Step 3. Accept License Agreements

At the **License Agreement** step of the wizard, read and accept Veeam license agreement, licensing policy, 3rd party components and required software license agreements. You will not be able to continue installation until you accept license agreements.

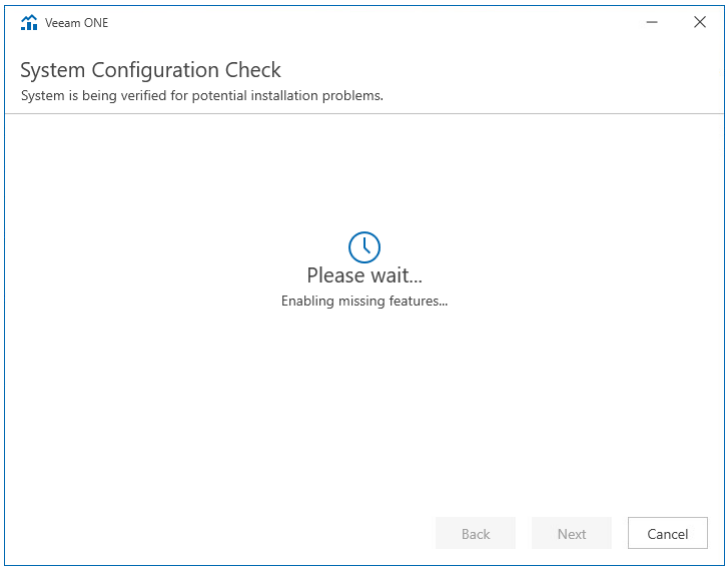
To read the terms of the license agreements, click the individual links.



Step 4. Perform System Configuration Check

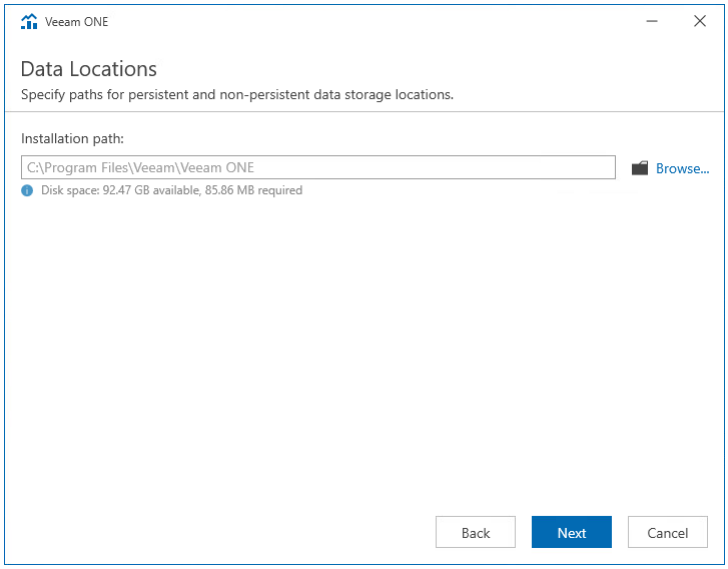
Before proceeding with the installation, the installer will perform system configuration check to determine if all prerequisite software is available on the machine. To learn what software is required for Veeam ONE, see System Requirements.

If some of the required software components are missing, the setup wizard will enable the missing software components and features automatically.



Step 5. Choose Installation Path

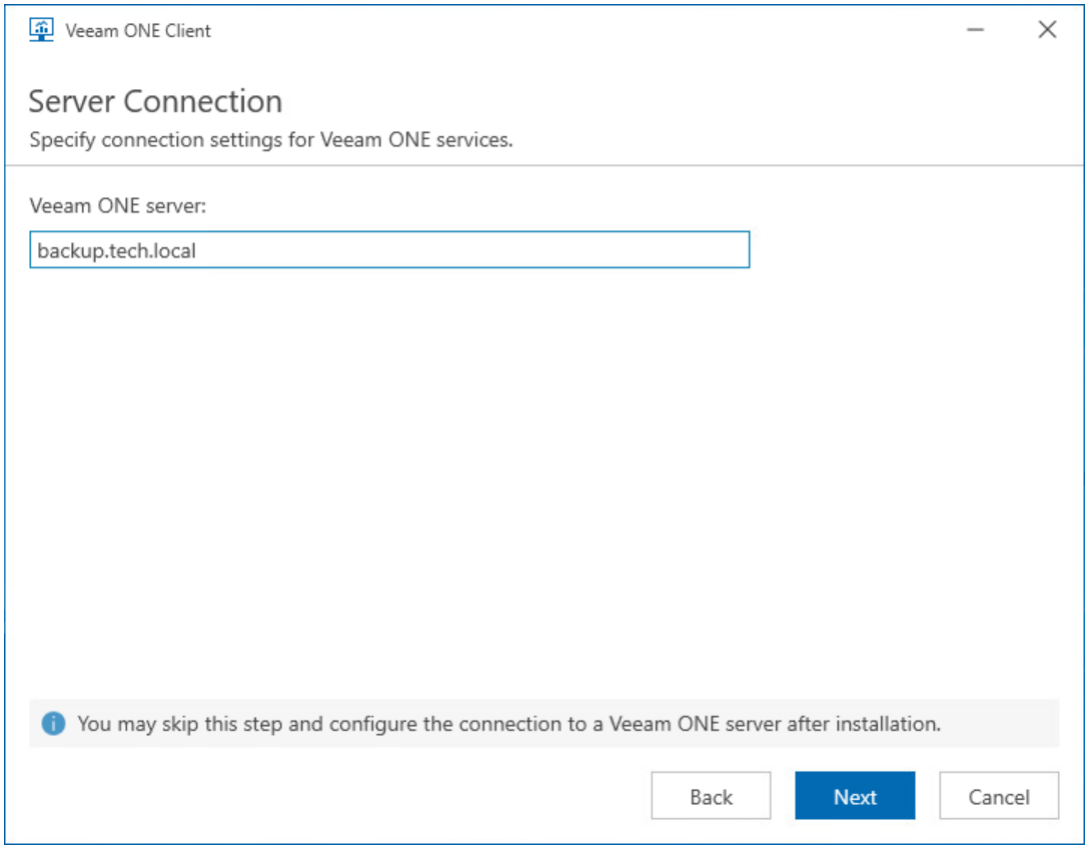
To change the installation directory, click **Browse** and select the location where you want to install Veeam ONE Client.



Step 6. Specify Veeam ONE Server Name

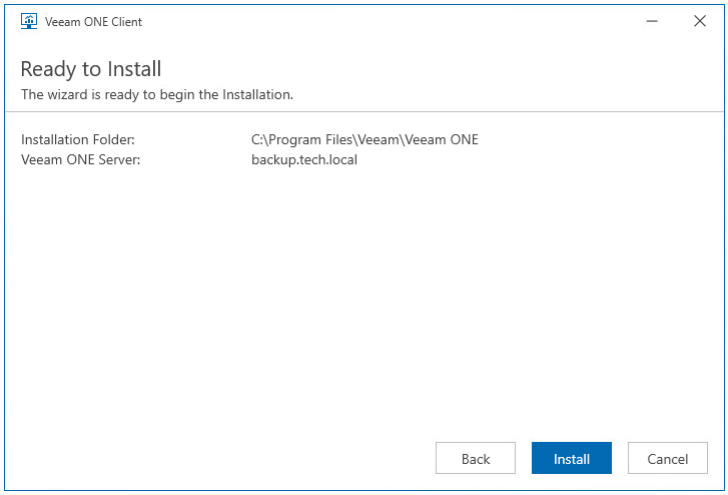
At the **Server Connection** step of the wizard, specify the FQDN or IP address of a machine where the Veeam ONE Server component is installed.

You can skip this step. In this case, you will be prompted to specify Veeam ONE Server name when you launch Veeam ONE Client for the first time.



Step 7. Review Installation Summary

At the **Ready to Install** step of the wizard, carefully review installation configuration to ensure that you specified correct settings. Click **Install** to begin the installation process.

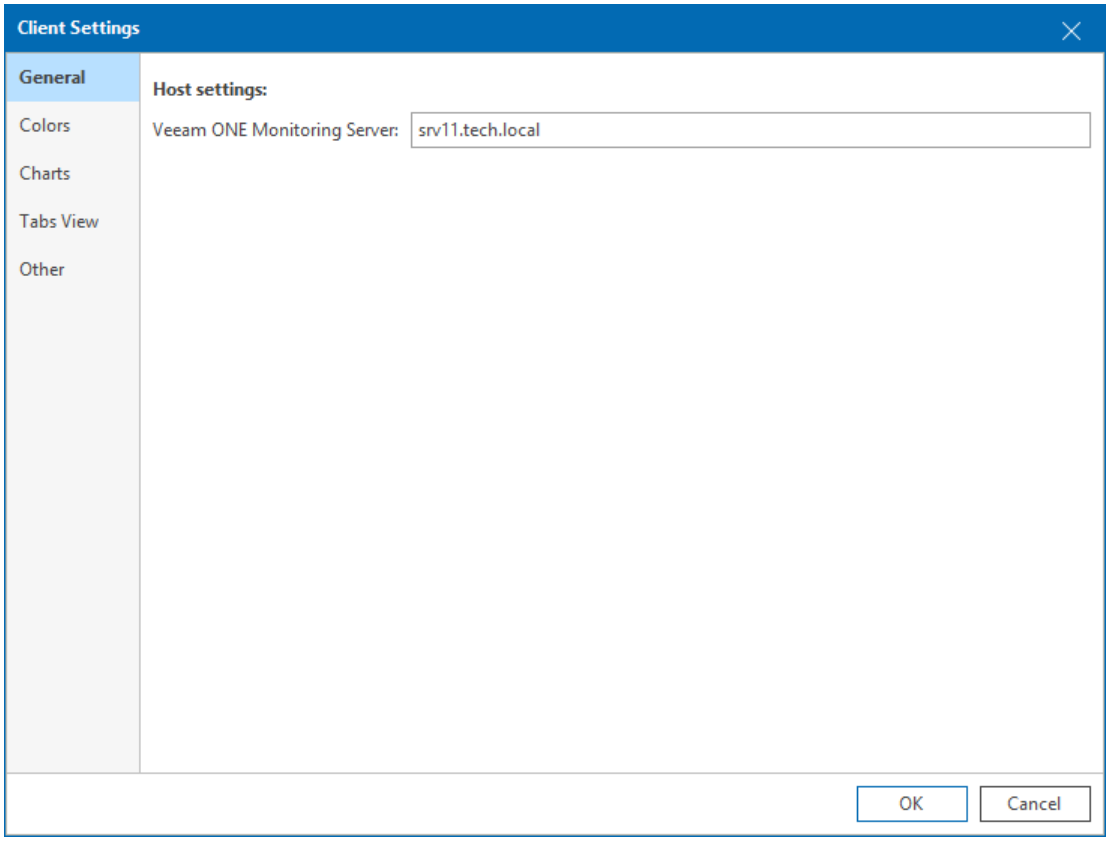


When the installation completes, click **Finish** to close the wizard.

Step 8. Check Veeam ONE Client Settings

If Veeam ONE Client is installed separately from the Veeam ONE Server component, make sure that Veeam ONE Client can communicate with the Veeam ONE Server part.

On the machine where you installed Veeam ONE Client, start the Veeam ONE Client. If during installation you did not specify the name of a machine where Veeam ONE Server runs, you will be prompted to provide the server name. If, for some reason, you cannot see a window prompting for the Veeam ONE Server name, in Veeam ONE Client main menu select **Settings** > **Client Settings** > **General**, and specify the name of a machine hosting Veeam ONE Server.



Installing Veeam ONE in Unattended Mode

You can install Veeam ONE in the unattended mode using the command line interface. The unattended installation mode does not require user interaction. You can use it to automate the installation process in large deployments.

Before You Begin

Before you start unattended installation, make sure that you perform the following steps:

1. Download the Veeam ONE installation image from the Veeam website. You can burn the downloaded image to a CD/DVD or mount the image to the target machine using disk image emulation software.
2. Check the system requirements. For details, see System Requirements.
3. Log on to the target machine under the account that has the Local Administrator permissions on the machine. For details, see Permissions.
4. Obtain a license file. If you do not specify a path to the license file during installation, Veeam ONE will operate in the Community Edition mode.
5. Define required and optional parameters in either the `VoAnswerFile_install.xml` or `VoClientAnswerFile_install.xml` file found in the `\Setup\Silent\AnswerFiles` folder of the Veeam ONE installation image:
   - To install all Veeam ONE components use `VoAnswerFile_install.xml` located in the `/Setup/Silent/AnswerFiles/VO` folder.

     To upgrade or uninstall all Veeam ONE components, use the `_uninstall.xml` and `_upgrade.xml` files located in the same folder.
   - To install Veeam ONE Client use `VoClientAnswerFile_install.xml` located in the `/Setup/Silent/AnswerFiles/VOClient` folder.

     To upgrade or uninstall Veeam ONE Client, use the `_uninstall.xml` and `_upgrade.xml` files located in the same folder.

Running Unattended Installation

To install Veeam ONE in unattended mode:

1. Open the product installation image file.
2. Navigate to the `Setup\Silent\AnswerFiles` folder.
3. Depending on what components you want to install, open `VO for Veeam ONE` or `VOCLient for Veeam ONE Client`.
4. In the relevant folder, open the `VoAnswerFile_install.xml` file in your preferred text editor.

   The file contains all the relevant information, including optional and required parameters for you to complete based on your installation requirements.
5. Once all parameters are complete, save the file and close.
6. Navigate back to the folder where the `Veeam.Silent.Install.exe` file exists (typically the `setup\silent` path of your root folder) and open the command line tool.
7. To check that all parameters are correct, run the `Veeam.Silent.Install.exe /?` command. This will display any unspecified parameters that must be completed before running unattended installation.
8. To run the install, enter `Veeam.Silent.Install.exe /AnswerFile C:\YourDesiredLogFolderPath_install.xml` where `YourDesireLogFolderPath` is the installation log files location.

   During installation the command line will return any error messages that need to be fixed.

NOTE:

You cannot use your Veeam account log in to verify your license, you can only specify the path to the license file. For details on Step 4. Provide License.

Installation Command-Line Syntax

You can install the following Veeam ONE components in the unattended mode:

- Veeam ONE Monitoring Service
- Veeam ONE Reporting Service
- Veeam ONE Web Services
- Veeam ONE Client
- Veeam ONE Agent

NOTE:

You must install server components first to create Veeam ONE database. Installation of UI components (Web Client and Veeam ONE Client) requires reference to an existing database.

Monitoring Service

To install Veeam ONE Monitoring service, use a command with the following syntax:

```
msiexec.exe [/L*v "<path_to_log>"] /qn /i "<path_to_msi>" [ACCEPT_THIRDPARTY_LI
CENSES="1"][ACCEPT_EULA="1"][ACCEPT_REQUIRED_SOFTWARE="1"][ACCEPT_LICENSING_POL
ICY="1"][VM_MN_SERVICEACCOUNT="<Veeam_One_Service_Account>"][VM_MN_SERVICEPASSW
ORD="<Veeam_One_Service_Account_Password>"][VM_MN_SQL_SERVER="<SQL_server>"][VM
_MN_SQL_DATABASE="<database_name>"] [VM_MN_SQL_AUTHENTICATION="0"] [VM_MN_SQL_U
SER="<SQL_auth_username>"] [VM_MN_SQL_PASSWORD="<SQL_auth_password>"] [EDITLICF
ILEPATH="<path_to_license_file>"] [VO_LICENSE_AUTOUPDATE="1"] [PF_VEEAMONE="<pa
th_to_installdir >"][VM_GRPC_SERVER_PORT="<port_number>"][VM_MN_CACHE="<path_to
_cache_folder>"] [VO_INSTALLATION_TYPE="0"] [VM_MN_SERVER_AUTOUPDATE_ENABLED="1
"]
```

The command has the following parameters:

Option	Parameter	Required	Description
/L	*v logfile	No	Creates an installation log file with the verbose output. Specify an existing path to the log file as the parameter value. A setup log file created during the previous installation is cleared. Example: */L*v "C:\ProgramData\Veeam\Setup\Temp\Logs\MonitorServerSetup.txt"*
/q	n	Yes	Sets the user interface level to "no", which means no user interaction is needed during installation.

Option	Parameter	Required	Description
/i	setup file	Yes	Installs Veeam ONE Monitoring service. Specify a full path to the setup file as the parameter value. Example: */i "C:\Veeam\Monitor\VeeamONE.Monitor.Server.x64.msi"*
ACCEPT_THIRDPARTY_LICENSES	0/1	Yes	Specifies if you want to accept the terms of the license agreement for the 3rd party components. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_THIRDPARTY_LICENSES="1"*
ACCEPT_EULA	0/1	Yes	Specifies if you want to accept the terms of the Veeam license agreement. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_EULA="1"*
ACCEPT_LICENSING_POLICY	0/1	Yes	Specifies if you want to accept the terms of the Veeam licensing policy. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_LICENSING_POLICY="1"*
ACCEPT_REQUIRED_SOFTWARE	0/1	Yes	Specifies if you want to accept the terms of the required software license agreements. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_REQUIRED_SOFTWARE="1"*
VM_MN_SERVICEACCOUNT	user	Yes	Specifies a user account under which the Veeam ONE Services will run and that will be used to access Veeam ONE database in the Microsoft Windows authentication mode. Example: *VM_MN_SERVICEACCOUNT="ONESERVER\Administrator"*

Option	Parameter	Required	Description
VM_MN_SERVICEPASSWORD	password	Yes	This parameter must be used if you have specified the *VM_MN_SERVICEACCOUNT* parameter. Specifies a password for the account under which the Veeam ONE Services will run and that will be used to access Veeam ONE database. Example: *VM_MN_SERVICEPASSWORD="p@ssw0rd"*
VM_MN_SQL_SERVER	SQL server\instance	No	Specifies a Microsoft SQL server and instance on which the Veeam ONE database will be deployed. By default, Veeam ONE uses the *LOCALHOST|VEEAMSQL2016* server. Example: *VM_MN_SQL_SERVER="ONESERVER|VEEAMSQL2016_MY"*
VM_MN_SQL_DATABASE	database	No	Specifies a name of the Veeam ONE database, by default, VeeamOne. Example: *VM_MN_SQL_DATABASE="VeeamOneDB"*
VM_MN_SQL_AUTHENTICATION	0/1	No	Specifies if you want to use the Microsoft SQL Server authentication mode to connect to the Microsoft SQL Server where the Veeam ONE database is deployed. Specify 1 to use the SQL Server authentication mode. If you do not use this parameter, Veeam ONE will connect to the Microsoft SQL Server in the Microsoft Windows authentication mode (default value, 0). Together with this parameter, you must specify the following parameters: *VM_MN_SQL_USER* and *VM_MN_SQL_PASSWORD.* Example: *VM_MN_SQL_AUTHENTICATION="1"*
VM_MN_SQL_USER	user	No	This parameter must be used if you have specified the *VM_MN_SQL_AUTHENTICATION* parameter. Specifies a LoginID to connect to the Microsoft SQL Server in the SQL Server authentication mode. Example: *VM_MN_SQL_USER="sa"*
VM_MN_SQL_PASSWORD	password	No	This parameter must be used if you have specified the *VM_MN_SQL_AUTHENTICATION* parameter. Specifies a password to connect to the Microsoft SQL Server in the SQL Server authentication mode. Example: *VM_MN_SQL_PASSWORD="p@ssw0rd"*

Option	Parameter	Required	Description
EDITLICFILEPATH	license path	No	Specifies a full path to the license file. If this parameter is not specified, Veeam ONE Community Edition will be installed. Example: *EDITLICFILEPATH="C:\Users\Administrator\Desktop\veeam_one_subscription_100_100.lic"*
VO_LICENSE_AUTOUPDATE	0/1	No	Specifies if you want to enable automatic license update and usage reporting. By default, license auto update is enabled. Example: VO_LICENSE_AUTOUPDATE="0"
PF_VEEAMONE	path	No	Installs the component to the specified location. By default, Veeam ONE uses the `Veeam ONE Monitor Server` subfolder of the `C:\Program Files\Veeam\Veeam ONE` folder. Example: *PF_VEEAMONE="C:\Veeam\"* The component will be installed to the `C:\Veeam\Veeam ONE Monitor Server` folder.
VM_GRPC_SERVER_PORT	port number	No	Specifies the port number used for communication between Veeam ONE Monitoring service and Veeam ONE Web Client. If you do not use this parameter, Veeam ONE Monotoring service will use the default port 2714. Example: *VM_GRPC_SERVER_PORT="2714"*
VM_MN_CACHE	path	No	Specifies a path to the folder where Performance Cache will be stored. If you do not use this parameter, the performance cache will be stored to the `C:\PerfCache` folder (default). Example: *VM_MN_CACHE="D:\Veeam\PerfCache"*

Option	Parameter	Required	Description
VO_INSTALLATION_TYPE	0, 1 or 2	No	Specifies the mode in which Veeam ONE will collect data from virtualization and Veeam Backup & Replication servers. Specify 1 to use the **Veeam backup data and large-scale virtual infrastructure performance monitoring** mode. Specify 2 to use the **Veeam backup data only** mode. If you do not use this parameter, Veeam ONE will collect data in the **Veeam backup data and virtual infrastructure performance monitoring mode** (default value, 0). For details, see Choose Data Collection Mode. Example: *VO_INSTALLATION_TYPE="2"*
VM_MN_SERVER_AUTOUPDATE_ENABLED	0/1	No	Specifies if you want to enable automatic updates after Veeam ONE installation. Specify 1 to enable automatic updates. Example: *VM_MN_SERVER_AUTOUPDATE_ENABLED="1"*

Example

Suppose you want to install Monitoring service with the following configuration:

- Installation log location: *C:|ProgramData|Veeam|Setup|Temp|Logs|MonitorServerSetup.txt*
- No user interaction
- Path to the MSI file: *C:|Veeam|Monitor|VeeamONE.Monitor.Server.x64.msi*
- Accept 3rd party license agreement
- Accept Veeam license agreement
- Accept required software license agreements
- Accept Veeam licensing policy
- Service user account: *ONESERVER|Administrator*
- Service user account password: *p@ssw0rd*
- License file location: *C:|Users|Administrator|Desktop|veeam_one_subscription_100_100.lic*
- Automatic license update: default
- Installation folder: default
- Path to Performance Cache folder: *D:|Veeam|PerfCache*
- SQL Server instance and database name: default
- Data collection mode: Veeam backup data and virtual infrastructure performance monitoring
- Automatic updates: enabled

The command to install Monitoring service with such configuration will have the following parameters:

```
msiexec.exe /L*v "C:\ProgramData\Veeam\Setup\Temp\Logs\MonitorServerSetup.txt"
/qn /i "C:\Veeam\Monitor\VeeamONE.Monitor.Server.x64.msi" ACCEPT_THIRDPARTY_LIC
ENSES="1" ACCEPT_EULA="1" ACCEPT_REQUIRED_SOFTWARE="1" ACCEPT_LICENSING_POLICY=
"1" VM_MN_SERVICEACCOUNT="ONESERVER\Administrator" VM_MN_SERVICEPASSWORD="p@ssw
0rd" EDITLICFILEPATH="C:\Users\Administrator\Desktop\veeam_one_subscription_100
_100.lic" VM_MN_CACHE="D:\Veeam\PerfCache" VO_INSTALLATION_TYPE="0" VM_MN_SERVE
R_AUTOUPDATE_ENABLED="1"
```

Reporting Service

To install Veeam ONE Reporting service, use a command with the following syntax:

```
msiexec.exe [/L*v "<path_to_log>"] /qn /i "<path_to_msi>" [ACCEPT_THIRDPARTY_LI
CENSES="1"][ACCEPT_EULA="1"][ACCEPT_REQUIRED_SOFTWARE="1"][ACCEPT_LICENSING_POL
ICY="1"][INSTALLDIR="<path_to_installdir >"][VO_REPORTER_SERVICE_ACCOUNT_NAME="
<Veeam_One_Service_Account>"][VO_REPORTER_SERVICE_ACCOUNT_PASSWORD="<Veeam_One_
Service_Account_Password>"][VO_REPORTER_SQL_SERVER_NAME="<SQL_server>"][VO_REPO
RTER_DATABASE_NAME="<database_name>"] [VO_REPORTER_AUTHENTICATION_MODE="0"] [VO
_REPORTER_SQL_USER_NAME="<SQL_auth_username>"] [VO_REPORTER_SQL_PASSWORD="<SQL_
auth_password>"] [EDITLICFILEPATH="<path_to_license_file>"] [VO_INSTALLATION_TY
PE="0"][VO_REPORTER_SERVER_WEB_API_CERTIFICATE_NAME="<certificate_name>"] [VO_R
EPORTER_SERVER_COMMUNICATION_PORT="<port_number>"] [VO_REPORTER_SERVER_WEB_API_
PORT="<port_number>"]
```

The command has the following parameters:

Option	Parameter	Required	Description
/L	*v logfile	No	Creates an installation log file with the verbose output. Specify an existing path to the log file as the parameter value. A setup log file created during the previous installation is cleared. Example: */L*v "C:\ProgramData\Veeam\Setup\Temp\Logs\ReporterServerSetup.txt"*
/q	n	Yes	Sets the user interface level to "no", which means no user interaction is needed during installation.
/i	setup file	Yes	Installs Veeam ONE Reporting Server. Specify a full path to the setup file as the parameter value. Example: */i "C:\Veeam\Reporter\VeeamONE.Reporter.Server.x64.msi"*

Option	Parameter	Required	Description
ACCEPT_THIRDPARTY_LICENSES	0/1	Yes	Specifies if you want to accept the terms of the license agreement for the 3rd party components. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_THIRDPARTY_LICENSES="1"*
ACCEPT_EULA	0/1	Yes	Specifies if you want to accept the terms of the Veeam license agreement. Specify *yes* if you want to accept the terms and proceed with installation. Example: *ACCEPT_EULA="1"*
ACCEPT_LICENSING_POLICY	0/1	Yes	Specifies if you want to accept the terms of the Veeam licensing policy. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_LICENSING_POLICY="1"*
ACCEPT_REQUIRED_SOFTWARE	0/1	Yes	Specifies if you want to accept the terms of the required software license agreements. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_REQUIRED_SOFTWARE="1"*
INSTALLDIR	path	No	Installs the component to the specified location. By default, Veeam ONE uses the `Veeam ONE Reporter Server` subfolder of the `C:\Program Files\Veeam\Veeam ONE` folder. Example: *INSTALLDIR="C:|Veeam|"* The component will be installed to the `C:\Veeam\Veeam ONE Reporter Server` folder.
VO_REPORTER_SERVICE_ACCOUNT_NAME	user	Yes	Specifies a user account under which the Veeam ONE Services will run and that will be used to access Veeam ONE database in the Microsoft Windows authentication mode. Example: *VO_REPORTER_SERVICE_ACCOUNT_NAME="ONESERVER|Administrator"*

Option	Parameter	Required	Description
VO_REPORTER_SERVICE_ACCOUNT_PASSWORD	password	Yes	This parameter must be used if you have specified the *VO_REPORTER_SERVICE_ACCOUNT_NAME* parameter. Specifies a password for the account under which the Veeam ONE Services will run and that will be used to access Veeam ONE database. Example: *VO_REPORTER_SERVICE_ACCOUNT_PASSWORD="p@sswOrd"*
VO_REPORTER_SQL_SERVER_NAME	SQL server\instance	No	Specifies a Microsoft SQL server and instance on which the Veeam ONE database will be deployed. By default, Veeam ONE uses the *LOCALHOST|VEEAMSQL2016* server. Example: *VO_REPORTER_SQL_SERVER_NAME="ONESERVER|VEEAMSQL2016_MY"*
VO_REPORTER_DATABASE_NAME	database	No	Specifies a name of the Veeam ONE database, by default, VeeamOne. Example: *VO_REPORTER_DATABASE_NAME="VeeamOneDB"*
VO_REPORTER_AUTHENTICATION_MODE_NAME	0/1	No	Specifies if you want to use the Microsoft SQL Server authentication mode to connect to the Microsoft SQL Server where the Veeam ONE database is deployed. Specify 1 to use the SQL Server authentication mode. If you do not use this parameter, Veeam ONE will connect to the Microsoft SQL Server in the Microsoft Windows authentication mode (default value, 0). Together with this parameter, you must specify the following parameters: *VO_REPORTER_SQL_USER_NAME* and *VO_REPORTER_SQL_PASSWORD*. Example: *VO_REPORTER_AUTHENTICATION_MODE_NAME="1"*
VO_REPORTER_SQL_USER_NAME	user	No	This parameter must be used if you have specified the *VO_REPORTER_AUTHENTICATION_TYPE_NAME* parameter. Specifies a LoginID to connect to the Microsoft SQL Server in the SQL Server authentication mode. Example: *VO_REPORTER_SQL_USER_NAME="sa"*

Option	Parameter	Required	Description
VO_REPORTER_SQL_PASSWORD	password	No	This parameter must be used if you have specified the *VO_REPORTER_AUTHENTICATION_TYPE_NAME* parameter. Specifies a password to connect to the Microsoft SQL Server in the SQL Server authentication mode. Example: *VO_REPORTER_SQL_PASSWORD="p@ssw0rd"*
EDITLICFILEPATH	license path	No	Specifies a full path to the license file. If this parameter is not specified, Veeam ONE Free Edition will be installed. Example: *EDITLICFILEPATH="C:\Users\Administrator\Desktop\veeam_one_subscription_100_100.lic"*
VO_REPORTER_SERVER_COMMUNICATION_PORT	port number	No	Specifies the port number used for communication between Veeam ONE Reporting service and Veeam ONE Web Client. If you do not use this parameter, Veeam ONE Reporting service will use the default port 2742. Example: *VO_REPORTER_SERVER_COMMUNICATION_PORT="2742"*
VO_REPORTER_SERVER_WEB_API_PORT	port number	No	Specifies the port number used for communication with Veeam ONE Web API. If you do not use this parameter, Veeam ONE Reporting service will use the default port 2741. Example: *VO_REPORTER_SERVER_WEB_API_PORT="2741"*
VO_REPORTER_SERVER_WEB_API_CERTIFICATE_NAME	certificate name	No	Specifies the certificate to be used by Veeam ONE Web API. The certificate must be installed to the Certificate Store on the machine where you run installation. If this parameter is not specified, a new self-signed certificate will be generated by `openssl.exe`.

Option	Parameter	Required	Description
VO_INSTALLATION_TYPE	0, 1 or 2	No	Specifies the mode in which Veeam ONE will collect data from virtualization and Veeam Backup & Replication servers. Specify 1 to use the **Optimized for Advanced Scalability Deployment** mode. Specify 2 to use **The Backup Data Only** mode. If you do not use this parameter, Veeam ONE will collect data in the **Optimized for Typical Deployment** mode (default value, 0). For details, see Choose Data Collection Mode. Example: *VO_INSTALLATION_TYPE="2"*

Example

Suppose you want to install Web Client server with the following configuration:

- Installation log location: *C:|ProgramData|Veeam|Setup|Temp|Logs|ReporterServerSetup.txt*
- No user interaction
- Path to the MSI file: *C:|Veeam|Reporter|VeeamONE.Reporter.Server.x64.msi*
- Accept 3rd party license agreement
- Accept Veeam license agreement
- Accept required software license agreements
- Accept Veeam licensing policy
- Installation folder: default
- Service user account: *ONESERVER|Administrator*
- Service user account password: *p@ssw0rd*
- SQL Server instance and database name: default
- License file location: *C:|Users|Administrator|Desktop|veeam_one_subscription_100_100.lic*
- Data collection mode: Optimized for Typical Deployment
- Communication port: default
- Web API port: default
- Web API certificate: generate new self-signed certificate

The command to install Web Client server with such configuration will have the following parameters:

```
msiexec.exe /L*v "C:\ProgramData\Veeam\Setup\Temp\Logs\ReporterServerSetup.txt"
/qn /i "C:\Veeam\Reporter\VeeamONE.Reporter.Server.x64.msi" ACCEPT_THIRDPARTY_L
ICENSES="1" ACCEPT_EULA="1" ACCEPT_REQUIRED_SOFTWARE="1" ACCEPT_LICENSING_POLIC
Y="1" VO_REPORTER_SERVICE_ACCOUNT_NAME="ONESERVER\Administrator" VO_REPORTER_SE
RVICE_ACCOUNT_PASSWORD="p@ssw0rd" EDITLICFILEPATH="C:\Users\Administrator\Deskt
op\veeam_one_subscription_100_100.lic" VO_INSTALLATION_TYPE="0"
```

Web Services

To install Veeam ONE Web Services, use a command with the following syntax:

```
msiexec.exe [/L*v "<path_to_log>"] /qn /i "<path_to_msi>" [ACCEPT_THIRDPARTY_LI
CENSES="1"][ACCEPT_EULA="1"][ACCEPT_REQUIRED_SOFTWARE="1"][ACCEPT_LICENSING_POL
ICY="1"][INSTALLDIR="<path_to_installdir >"][VO_REPORTER_WEB_SERVER_NAME="<Veea
m_One_Server_Name>"][VO_REPORTER_WEB_CONNECTION_ACCOUNT_NAME="<Veeam_One_Servic
e_Account>"][VO_REPORTER_WEB_CONNECTION_ACCOUNT_PASSWORD="<Veeam_One_Service_Ac
count_Password>"][VO_REPORTER_WEB_SERVER_WEB_API_PORT="<port_number>"] [VO_REPO
RTER_WEB_SITE_PORT="<reporter_site_port>"] [VO_REPORTER_WEB_SITE_CERTIFICATE_TH
UMBPRINT="reporter_site_certificate"]
```

The command has the following parameters:

Option	Parameter	Required	Description
/L	*v logfile	No	Creates an installation log file with the verbose output. Specify an existing path to the log file as the parameter value. A setup log file created during the previous installation is cleared. Example: */L*v "C:|ProgramData|Veeam|Setup|Temp|Logs|ReporterWEBSetup.txt"*
/q	n	Yes	Sets the user interface level to "no", which means no user interaction is needed during installation.
/i	setup file	Yes	Installs Web Client Web UI. Specify a full path to the setup file as the parameter value. Example: */i "C:|Veeam|Reporter|VeeamONE.Reporter.WebUI.x64.msi"*

Option	Parameter	Required	Description
ACCEPT_THIRDPARTY_LICENSES	0/1	Yes	Specifies if you want to accept the terms of the license agreement for the 3rd party components. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_THIRDPARTY_LICENSES="1"*
ACCEPT_EULA	0/1	Yes	Specifies if you want to accept the terms of the Veeam license agreement. Specify *1* if you want to accept the terms and proceed with installation. Example: *ACCEPT_EULA="1"*
ACCEPT_LICENSING_POLICY	0/1	Yes	Specifies if you want to accept the terms of the Veeam licensing policy. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_LICENSING_POLICY="1"*
ACCEPT_REQUIRED_SOFTWARE	0/1	Yes	Specifies if you want to accept the terms of the required software license agreements. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_REQUIRED_SOFTWARE="1"*
INSTALLDIR	path	No	Installs the component to the specified location. By default, Veeam ONE uses the `Veeam ONE Reporter Web` subfolder of the `C:\Program Files\Veeam\Veeam ONE` folder. Example: *INSTALLDIR="C:|Veeam|"* The component will be installed to the `C:\Veeam\Veeam ONE Reporter Web` folder.
VO_REPORTER_WEB_SERVER_NAME	server name	Yes	Specifies FQDN of the server where Veeam ONE Reporting Service is installed. Example: *VO_REPORTER_WEB_SERVER_NAME="oneserver.tech.local"*

Option	Parameter	Required	Description
VO_REPORTER_WEB_CONNECTION_ACCOUNT_NAME	user	Yes	Specifies a user account that will be used to access and configure Veeam ONE Reporting Service from the Web Client in the Microsoft Windows authentication mode. Example: *VO_REPORTER_WEB_CONNECTION_ACCOUNT_NAME="ONESERVER\Administrator"*
VO_REPORTER_WEB_CONNECTION_ACCOUNT_PASSWORD	password	Yes	This parameter must be used if you have specified the *VO_REPORTER_WEB_CONNECTION_ACCOUNT_NAME* parameter. Specifies a password for the account that will be used to access Veeam ONE Reporting Service from the Web UI. Example: *VO_REPORTER_WEB_CONNECTION_ACCOUNT_PASSWORD="p@ssw0rd"*
VO_REPORTER_WEB_SITE_PORT	port	No	Specifies a port that will be used by the Web Client website. By default, port number 1239 is used. Example: *VO_REPORTER_WEB_SITE_PORT="1239"*
VO_REPORTER_WEB_SITE_CERTIFICATE_THUMBPRINT	hash	No	Specifies the certificate to be used by the Web Client website. If this parameter is not specified, a new certificate will be generated by `openssl.exe`. Example: *RP_THUMBPRINT="0677d0b8f27caccc966b15d807b41a101587b488"*
VO_REPORTER_WEB_SERVER_WEB_API_PORT	port	No	Specifies the port number used for communication with Veeam ONE Web API. If you do not use this parameter, Veeam ONE Web Client will use the default port 2741. Example: *VO_REPORTER_WEB_SERVER_WEB_API_PORT="2741"*

Example

Suppose you want to install Web Client with the following configuration:

- Installation log location: *C:\ProgramData\Veeam\Setup\Temp\Logs\ReporterWEBSetup.txt*

- No user interaction
- Path to the MSI file: *C:|Veeam|Reporter|VeeamONE.Reporter.WebUI.x64.msi*
- Accept 3rd party license agreement
- Accept Veeam license agreement
- Accept required software license agreements
- Accept Veeam licensing policy
- Installation folder: default
- Veeam ONE Server name: oneserver.tech.local
- Service user account: *ONESERVER|Administrator*
- Service user account password: *p@ssw0rd*
- Website port: default
- Website certificate: generate new
- Web API port: default

The command to install Web Client with such configuration will have the following parameters:

```
msiexec.exe /L*v "C:\ProgramData\Veeam\Setup\Temp\Logs\ReporterWEBSetup.txt" /q
n /i "C:\Veeam\Reporter\VeeamONE.Reporter.WebUI.x64.msi" ACCEPT_THIRDPARTY_LICE
NSES="1" ACCEPT_EULA="1" ACCEPT_REQUIRED_SOFTWARE="1" ACCEPT_LICENSING_POLICY="
1" VO_REPORTER_WEB_SERVER_NAME="ONESERVER.TECH.LOCAL" VO_REPORTER_WEB_CONNECTIO
N_ACCOUNT_NAME="ONESERVER\Administrator" VO_REPORTER_WEB_CONNECTION_ACCOUNT_PAS
SWORD="p@ssw0rd"
```

Veeam ONE Client

To install Veeam ONE Client, use a command with the following syntax:

```
msiexec.exe [/L*v "<path_to_log>"] /qn /i "<path_to_msi>" [ACCEPT_THIRDPARTY_LI
CENSES="1"][ACCEPT_EULA="1"][ACCEPT_REQUIRED_SOFTWARE="1"][ACCEPT_LICENSING_POL
ICY="1"][INSTALLDIR="<path_to_installdir >"][VM_CLN_SERVER_NAME="<one_server_ad
dress>"]
```

The command has the following parameters:

Option	Parameter	Required	Description
/L	*v logfile	No	Creates an installation log file with the verbose output. Specify an existing path to the log file as the parameter value. A setup log file created during the previous installation is cleared. Example: */L*v "C:\ProgramData\Veeam\Setup\Temp\Logs\MonitorClientSetup.txt"*
/q	n	Yes	Sets the user interface level to "no", which means no user interaction is needed during installation.
/i	setup file	Yes	Installs Veeam ONE Client. Specify a full path to the setup file as the parameter value. Example: */i "C:\Veeam\Monitor\VeeamONE.Monitor.Client.x64.msi "*
ACCEPT_THIRDPARTY_LICENSES	0/1	Yes	Specifies if you want to accept the terms of the license agreement for the 3rd party components. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_THIRDPARTY_LICENSES="1"*
ACCEPT_EULA	0/1	Yes	Specifies if you want to accept the terms of the Veeam license agreement. Specify *1* if you want to accept the terms and proceed with installation. Example: *ACCEPT_EULA="1"*
ACCEPT_LICENSING_POLICY	0/1	Yes	Specifies if you want to accept the terms of the Veeam licensing policy. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_LICENSING_POLICY="1"*
ACCEPT_REQUIRED_SOFTWARE	0/1	Yes	Specifies if you want to accept the terms of the required software license agreements. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_REQUIRED_SOFTWARE="1"*

Option	Parameter	Required	Description
INSTALLDIR	path	No	Installs the component to the specified location. By default, Veeam ONE uses the `Veeam ONE Monitor Client` subfolder of the `C:\Program Files\Veeam\Veeam ONE` folder. Example: *INSTALLDIR="C:\Veeam\"* The component will be installed to the `C:\Veeam\Veeam ONE Monitor Client` folder.
VM_CLN_SERVER_NAME	server name or address	No	Specifies FQDN or IP address of the server where Veeam ONE Client is deployed. Example: *VM_CLN_SERVER_NAME="oneserver.tech.local"*

Example

Suppose you want to install Veeam ONE Client with the following configuration:

- Installation log location: *C:\ProgramData\Veeam\Setup\Temp\Logs\MonitorClientSetup.txt*
- No user interaction
- Path to the MSI file: *C:\Veeam\Monitor\VeeamONE.Monitor.Client.x64.msi*
- Accept 3rd party license agreement
- Accept Veeam license agreement
- Accept required software license agreements
- Accept Veeam licensing policy
- Installation folder: default
- Veeam ONE server: *oneserver.tech.local*

The command to install Veeam ONE Client with such configuration will have the following parameters:

```
msiexec.exe /L*v "C:\ProgramData\Veeam\Setup\Temp\Logs\MonitorClientSetup.txt"
/qn /i "C:\Veeam\Monitor\VeeamONE.Monitor.Client.x64.msi" ACCEPT_THIRDPARTY_LIC
ENSES="1" ACCEPT_EULA="1" ACCEPT_REQUIRED_SOFTWARE="1" ACCEPT_LICENSING_POLICY=
"1" VM_CLN_SERVER_NAME="oneserver.tech.local"
```

Veeam ONE Agent

To install Veeam ONE agent, use a command with the following syntax:

```
msiexec.exe [/L*v "<path_to_log>"] /qn /i "<path_to_msi>" [ACCEPT_THIRDPARTY_LI
CENSES="1"][ACCEPT_EULA="1"][ACCEPT_REQUIRED_SOFTWARE="1"][ACCEPT_LICENSING_POL
ICY="1"][INSTALLDIR="<path_to_installdir >"][VO_AGENT_TYPE="1"][VO_AGENT_SERVIC
E_ACCOUNT_NAME="<Veeam_One_Service_Account>"][VO_AGENT_SERVICE_ACCOUNT_PASSWORD
="<Veeam_One_Service_Account_Password>"][VO_BUNDLE_INSTALLATION="1"] [VO_AGENT_
SERVICE_PORT="<agent_port>"]
```

IMPORTANT!

Veeam ONE agent server must be installed on the machine that runs Veeam ONE server components.

The command has the following parameters:

Option	Parameter	Required	Description
/L	*v logfile	No	Creates an installation log file with the verbose output. Specify an existing path to the log file as the parameter value. A setup log file created during the previous installation is cleared. Example: */L*v "C:\ProgramData\Veeam\Setup\Temp\Logs\MonitorClientSetup.txt"*
/q	n	Yes	Sets the user interface level to "no", which means no user interaction is needed during installation.
/i	setup file	Yes	Installs Veeam ONE Client Client. Specify a full path to the setup file as the parameter value. Example: */i "C:\Veeam\Monitor\veeam_monitor_cln_x64.msi "*
ACCEPT_THIRDPARTY_LICENSES	0/1	Yes	Specifies if you want to accept the terms of the license agreement for the 3rd party components. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_THIRDPARTY_LICENSES="1"*
ACCEPT_EULA	0/1	Yes	Specifies if you want to accept the terms of the Veeam license agreement. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_EULA="1"*

Option	Parameter	Required	Description
ACCEPT_LICENSING_POLICY	0/1	Yes	Specifies if you want to accept the terms of the Veeam licensing policy. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_LICENSING_POLICY="1"*
ACCEPT_REQUIRED_SOFTWARE	0/1	Yes	Specifies if you want to accept the terms of the required software license agreements. Specify 1 if you want to accept the terms and proceed with installation. Example: *ACCEPT_REQUIRED_SOFTWARE="1"*
INSTALLDIR	path	No	Installs the component to the specified location. By default, Veeam ONE uses the `Veeam ONE Agent` subfolder of the `C:\Program Files\Veeam\Veeam ONE` folder. Example: *INSTALLDIR="C:|Veeam|"* The component will be installed to the `C:\Veeam\Veeam ONE Agent` folder.
VO_AGENT_TYPE	0/1	Yes	Specifies the mode in which Veeam ONE agent will run. Specify 1 if you want to install Veeam ONE agent server. Specify 0 if you want to install Veeam ONE agent client. Example: *VO_AGENT_TYPE ="1"*
VO_AGENT_SERVICE_ACCOUNT_NAME	user	Yes	Specifies a user account under which the Veeam ONE Agent service will run. Example: *VO_AGENT_SERVICE_ACCOUNT_NAME="ONESERVER|Administrator"*
VO_AGENT_SERVICE_ACCOUNT_PASSWORD	password	Yes	This parameter must be used if you have specified the *VO_AGENT_SERVICE_ACCOUNT_NAME* parameter. Specifies a password for the account that will be used to run Veeam ONE Agent. Example: *VO_AGENT_SERVICE_ACCOUNT_PASSWORD="p@ssw0rd"*

Option	Parameter	Required	Description
VO_BUNDLE_INSTALLATION	0/1	Yes	This parameter must be used if you have specified 1 for the VO_AGENT_TYPE parameter. Specify 1 to let Veeam ONE Monitor Service know about the installed Veeam ONE agent server.
VO_AGENT_SERVICE_PORT	port	No	Specifies a port that will be used by Veeam ONE to communicate with Veeam ONE Agent. By default, port number 2805 is used. Example: *VO_AGENT_SERVICE_PORT="2805"*

Example

Suppose you want to install Client Client with the following configuration:

- Installation log location: *C:|ProgramData|Veeam|Setup|Temp|Logs|AgentSetup.txt*
- No user interaction
- Path to the MSI file: *C:|Veeam|Monitor|VeeamONE.Agent.x64.msi*
- Accept 3rd party license agreement
- Accept Veeam license agreement
- Accept required software license agreements
- Accept Veeam licensing policy
- Installation folder: default
- Agent mode: server
- Service user account: *ONESERVER|Administrator*
- Service user account password: *p@ssw0rd*
- Veeam ONE Agent communication port: default

The command to install Veeam ONE Agent with such configuration will have the following parameters:

```
msiexec.exe /L*v "C:\ProgramData\Veeam\Setup\Temp\Logs\AgentSetup.txt" /qn /i "
C:\Veeam\Monitor\VeeamONE.Agent.x64.msi" ACCEPT_THIRDPARTY_LICENSES="1" ACCEPT_
EULA="1" ACCEPT_REQUIRED_SOFTWARE="1" ACCEPT_LICENSING_POLICY="1" VO_AGENT_TYPE
="1" VO_BUNDLE_INSTALLATION="1" VO_AGENT_SERVICE_ACCOUNT_NAME="ONESERVER\Admini
strator" VO_AGENT_SERVICE_ACCOUNT_PASSWORD="p@ssw0rd"
```

Accessing Veeam ONE Client and Web Client

To access Veeam ONE Client and Web Client, take the following steps.

Veeam ONE Client

To access Veeam ONE Client:

1. Log on to the machine where Veeam ONE Client is installed.
2. In **Microsoft Windows Programs** menu, choose **Veeam ONE Client**.
3. In the authentication window, specify the name of a server where the Veeam ONE Server component runs. Type credentials of a user account under which you want to connect to Veeam ONE Server. To connect using credentials of a Windows user account under which you are logged on to the machine, select the **Log in as current user** check box.

   The user account must either:

   - Be a member of the *Veeam ONE Administrators*, *Veeam ONE Power Users* or *Veeam ONE Read-Only Users* group. For details on user groups, see Security Groups.
   - Have permissions assigned on objects in the VMware vCenter Server or VMware Cloud Director inventory hierarchy. For details, see Multi-Tenant Monitoring and Reporting.

     This prerequisite applies to the VMware vSphere platform only.
4. Click **Connect**.

To create a shortcut for the connection, click **Save Shortcut**. You can create one shortcut for every Veeam ONE server. The server name will be saved after the first successful login.

> **NOTE**
>
> If you want to save credentials for a connection in a shortcut, you must agree to save these credentials in the Windows Credentials Manager.

Other Ways to Access Veeam ONE Client

To speed up the time it takes to access Veeam ONE Client, you can launch it without the necessity to specify user credentials in the authentication window.

- To launch Veeam ONE Client under the account of a user that is currently logged to the machine, in the command shell call the `Monitor.exe` file residing in the installation directory with the `/currentuser` parameter. For example:

  ```
  "C:\Program Files\Veeam\Veeam ONE\Veeam ONE Monitor Client\Monitor.exe"
  /currentuser
  ```

- To launch Veeam ONE Client with explicit user credentials, in the command shell call the `Monitor.exe` file residing in the installation directory with the `/username` and `/password` parameters. For example:

  ```
  "C:\Program Files\Veeam\Veeam ONE\Veeam ONE Monitor Client\Monitor.exe"
  /username tech\john.smith /password PaSSw0rd
  ```

You can save this type of commands as a Windows shortcut and use it to access Veeam ONE Client.

Veeam ONE Web Client

To access Veeam ONE Web Client:

1. Open the Veeam ONE Web Client using one of the following options:
   - Access Veeam ONE Web Client from Veeam ONE Client. To do this, in the main menu, click **Reports**.
   - Access Veeam ONE Web Client locally, on the machine where the Veeam ONE Web Services component is installed. To do this, in Microsoft Windows Programs menu choose **Veeam ONE Web Client**.
   - Access Veeam ONE Web Client remotely using your web browser. To do this, browse to the URL of the Veeam ONE Web Client website. This website runs on the machine where the Veeam ONE Web Services component is installed. The URL must look similar to the following one (assuming you use the default website port `1239`):

     ```
     https://webserver.domain.tld:1239
     ```

     Note that Veeam ONE Web Client is available over HTTPS.
2. Type credentials of a user account under which you want to connect to Veeam ONE Web Services.

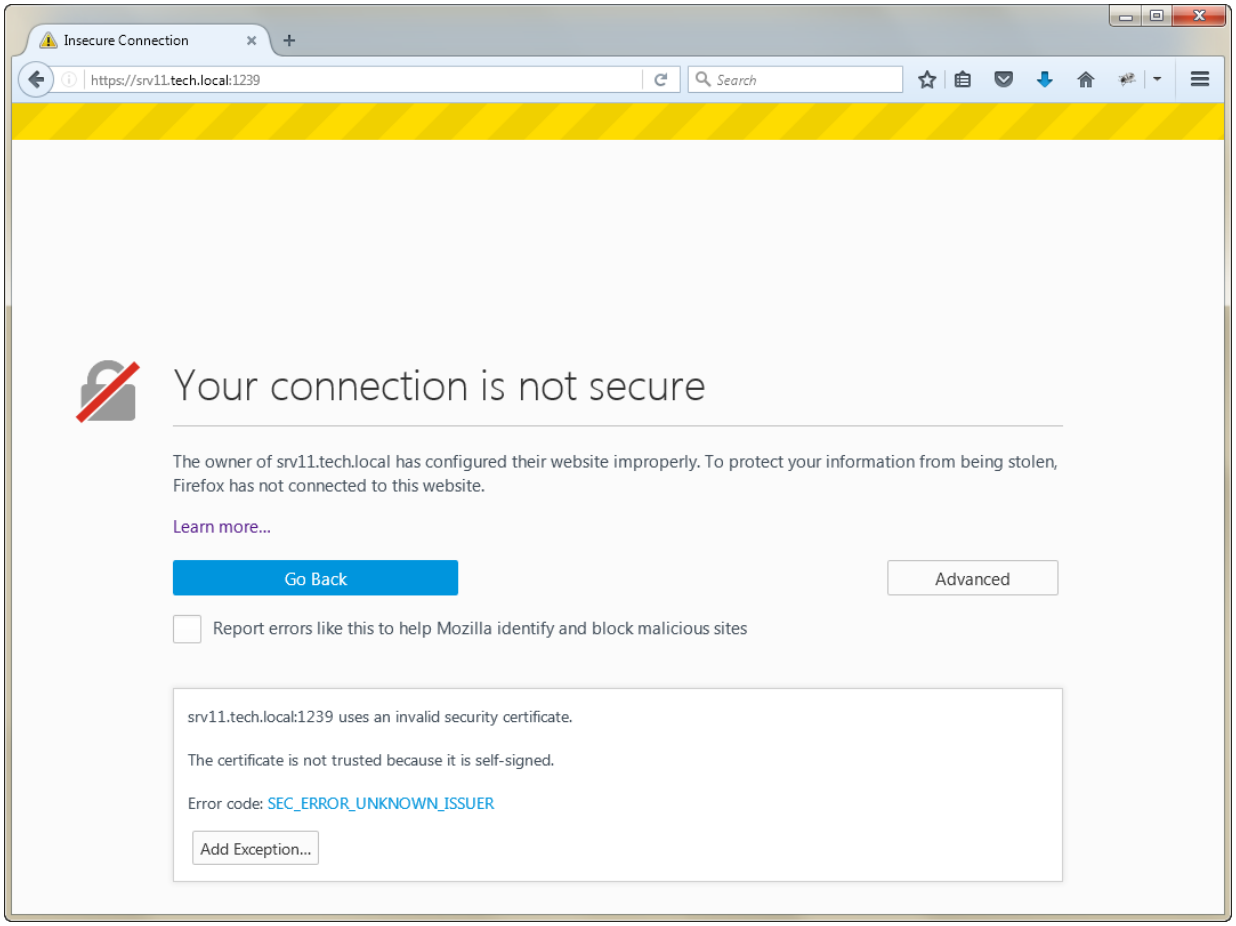
   The user account must either:
   - Be a member of the *Veeam ONE Administrators*, *Veeam ONE Power Users* or *Veeam ONE Read-Only Users* group. For details on user groups, see Security Groups.
   - Have permissions assigned on objects in the VMware vCenter Server or VMware Cloud Director inventory hierarchy. For details, see Multi-Tenant Monitoring and Reporting.

     This prerequisite applies to the VMware vSphere platform only.
3. If you log in for the first time, make sure that pop-up windows are allowed for the Veeam ONE Web Client.

Configuring Trusted Connection

Veeam ONE uses TLS to ensure secure data communication between Veeam ONE Web Client website and a web browser.

In case you installed a self-signed certificate, when you try to access Veeam ONE Web Client from a remote machine, the browser will display a warning notifying that the connection is untrusted (although it is secured with TLS).



To eliminate the warning, import the self-signed certificate to client machines (the machines from which you plan to access the Veeam ONE Web Client website).

For details on importing TLS certificates, see this Microsoft Learn article.

For details on Veeam ONE certificates, see Appendix C. Veeam ONE Certificates.

Configuring Veeam ONE

To start working with Veeam ONE, perform a number of steps for its initial configuration:

1. Connect servers you plan to monitor.

   Connect Veeam Backup & Replication, Veeam Backup for Microsoft 365, VMware vSphere, VMware Cloud Director and Microsoft Hyper-V servers.

   This step is not required if you have already connected the default virtualization and backup infrastructure servers during Veeam ONE installation.

2. Choose objects to monitor and report on.

   By default, Veeam ONE collects data for all child objects of connected servers. You can change the data collection scope and choose to monitor and report on only specific hosts, datastores and VMs.

3. Configure notification settings.

   Specify notification settings to stay aware of all important events and changes that happen in the virtual and backup environment.

4. Check data collection schedule for Veeam ONE Reporting Service.

   Check and if necessary adjust data collection schedule for Veeam ONE reporting capabilities.

5. Add users to Veeam ONE security groups.

   Add to Veeam ONE security groups users who must have access to Veeam ONE Client and Web Client functionality.

Connecting Servers

To collect information about your virtual infrastructure and track the efficiency of VM data protection, you must configure connections to VMware vSphere, VMware Cloud Director, Microsoft Hyper-V virtual management servers and Veeam Backup & Replication servers in Veeam ONE Client. Configured connection settings are automatically propagated to all Veeam ONE components.

Note that if you have already connected servers during Veeam ONE installation, you do not need to connect them again.

You can connect the following types of servers:

- Veeam Backup & Replication
- Veeam Backup for Microsoft 365
- VMware vSphere
- VMware Cloud Director
- Microsoft Hyper-V

Before You Begin

Before you configure server connections, check these requirements:

- Supported versions of virtual platforms
- Supported versions and editions of Veeam Backup & Replication and Veeam Backup for Microsoft 365
- Requirements to accounts used for collecting data
- Ports that must be open to allow Veeam ONE collect data from connected servers

For details, see section Deployment Planning and Preparation.

Connecting Veeam Backup & Replication Servers

To collect data about your backup infrastructure and data protection operations, you must configure connections to Veeam Backup & Replication servers in Veeam ONE Client. You can connect the following types of servers:

- Veeam Backup & Replication server to monitor standalone backup servers
- Veeam Backup Enterprise Manager to monitor all backup servers federated under Veeam Backup Enterprise Manager

> **NOTE:**
>
> Before you connect a Veeam Backup & Replication server to Veeam ONE Client check that product licenses are compatible. For details on license compatibility, see Compatibility with Veeam Backup & Replication Licenses.

To configure a connection to a Veeam Backup & Replication server, take the following steps.

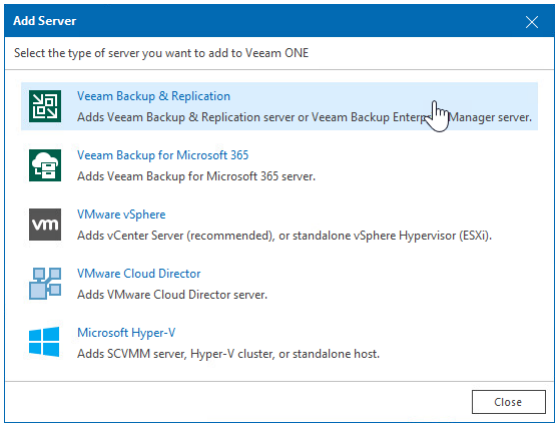
Step 1. Launch Add Server Wizard

To launch the **Add Server** wizard, open Veeam ONE Client and do one of the following:

- In the main menu, click **Add Server**.
- Press `[CTRL+I]` on the keyboard.
- At the bottom of the inventory pane, open the **Veeam Backup & Replication** view, right-click the **Backup Infrastructure** node and choose **Add Server** from the shortcut menu.

Step 2. Choose Server Type

At the first step of the wizard, click **Veeam Backup & Replication**.



Step 3. Specify Server Name and Role

At the **Connection** step of the wizard:

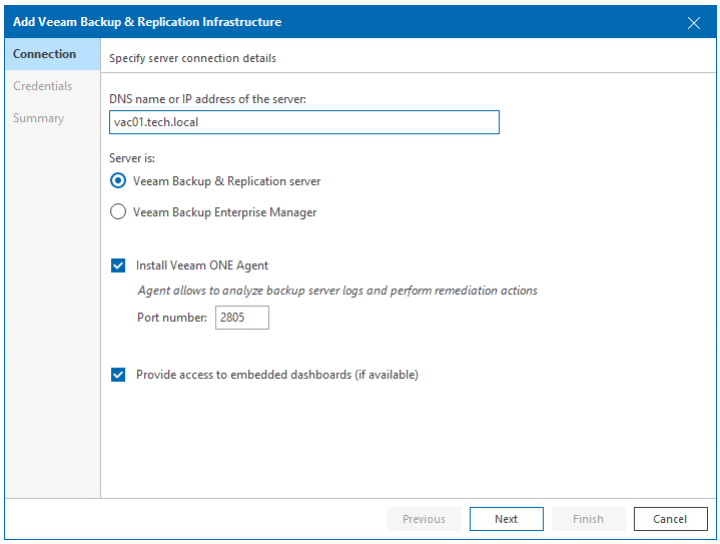
1. Enter DNS name or IP address of the backup server you want to connect.
2. Specify the server role — Veeam Backup & Replication server or Veeam Backup Enterprise Manager.

   If you choose to add Veeam Backup Enterprise Manager, Veeam ONE will automatically connect all Veeam Backup & Replication servers added to the Veeam Backup Enterprise Manager.
3. If you do not want to install Veeam ONE agent on Veeam Backup & Replication server, deselect the **Install Veeam ONE Agent** check box.

   You can also change the port number if required. By default, port `2805` is used for communication with Veeam Backup & Replication server.

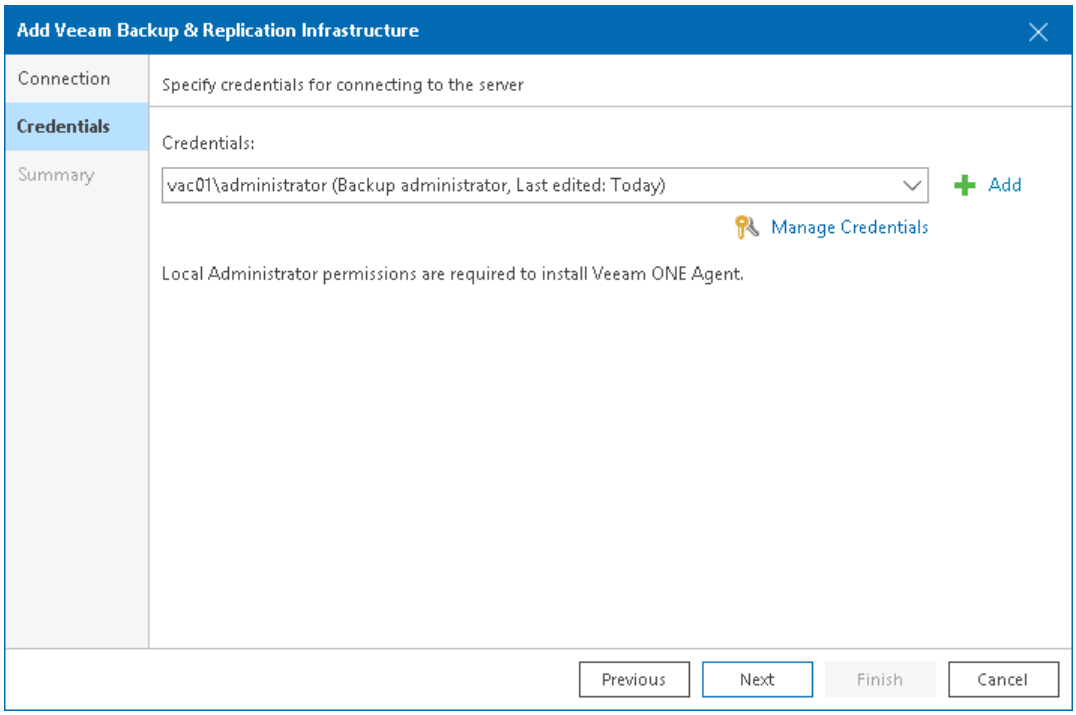
   For details on Veeam ONE agent role and modes, see Veeam ONE Architecture.
4. If you want to enable Veeam ONE dashboard integration in Veeam Backup & Replication, select the **Provide access to embedded dashboards (if available)** check box.

   Support for Veeam ONE dashboard integration with Veeam Backup & Replication is available only with Veeam Backup & Replication versions 12.1 and above.



Step 4. Specify Credentials

At the **Credentials** step of the wizard, click **Add** and specify credentials of the user account for connecting to the server. For details on adding credentials records, see section Credentials Manager of Veeam ONE Monitoring Guide.



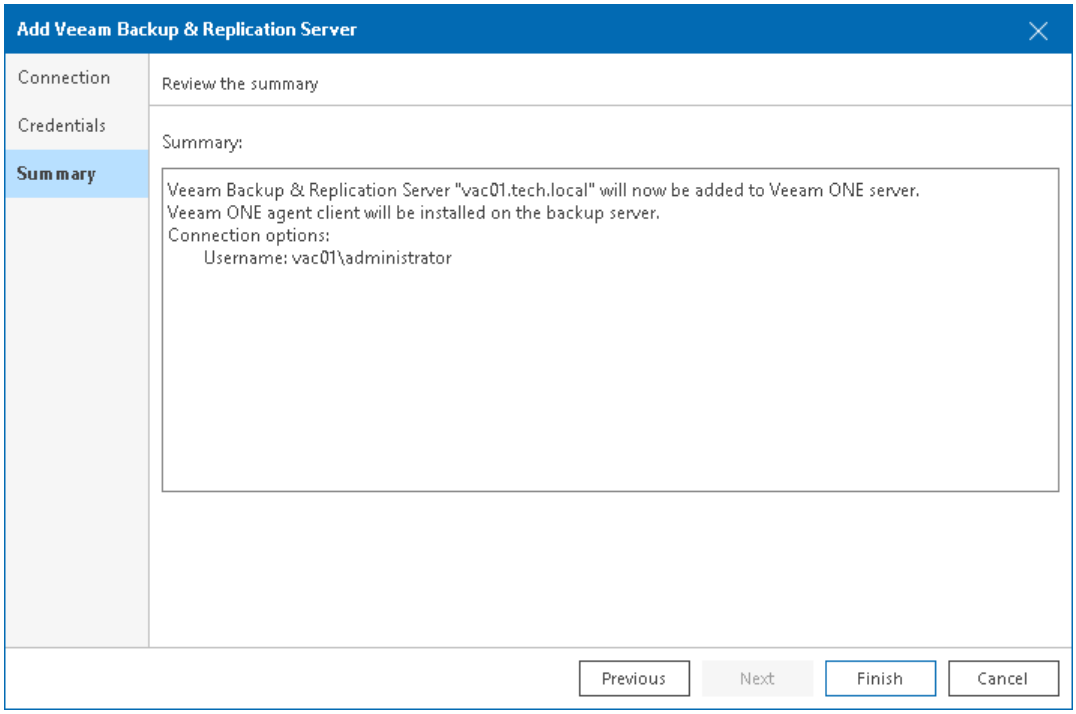
The provided credentials will be used to connect the backup server and all managed servers in the backup infrastructure:

- Veeam Backup & Replication servers (if you connect Veeam Backup Enterprise Manager)
- Backup proxies
- Backup repositories
- WAN Accelerators
- Tape servers
- Cloud Gateways

If the provided user account does not have required permissions on a managed backup infrastructure server, Veeam ONE will fail to connect to this server. In this case, you must provide custom connection credentials manually. For details, see Connection to Veeam Backup & Replication Servers.

Step 5. Review Connection Settings

At the **Summary** step of the wizard, review the connection details and click **Finish**.



Keep in mind that it may take a while for Veeam ONE to collect and display configuration and performance data for the newly added backup server and managed backup infrastructure components.

- After you connect a Veeam Backup & Replication server, Veeam ONE imports all historical data that is stored on the backup server.
- After you connect a Veeam Backup Enterprise Manager server, Veeam ONE automatically builds the hierarchy of all managed backup servers. Next, it connects managed backup servers and imports from these servers data on job sessions.

Connecting Veeam Backup for Microsoft 365 Servers

To collect data about your Veeam Backup for Microsoft 365 infrastructure and data protection operations, you must configure connections to Veeam Backup for Microsoft 365 servers in Veeam ONE Client.

NOTE:

- Before you connect a Veeam Backup for Microsoft 365 server to Veeam ONE Client check that product licenses are compatible. For details on license compatibility, see Compatibility with Veeam Backup for Microsoft 365 Licenses.
- Veeam ONE monitors cloud Organizations protection only, monitoring of hybrid and on-premise (Exchange) platform protection is not supported.

To configure a connection to a Veeam Backup for Microsoft 365 server, take the following steps.

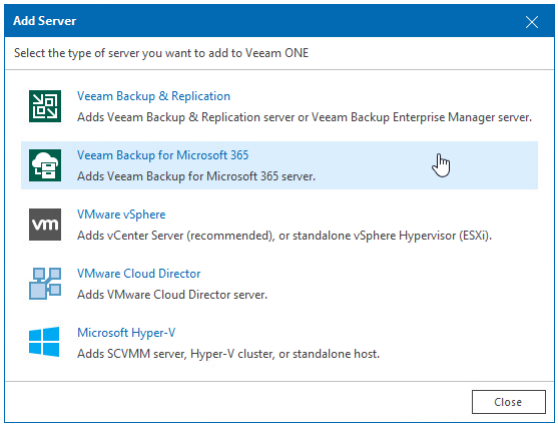
Step 1. Launch Add Server Wizard

To launch the **Add Server** wizard, open Veeam ONE Client and do one of the following:

- In the main menu, click **Add Server**.
- Press `[CTRL+I]` on the keyboard.
- At the bottom of the inventory pane, open the **Veeam Backup for Microsoft 365** view, right-click the Veeam Backup for Microsoft 365 node and choose **Add Server** from the shortcut menu.

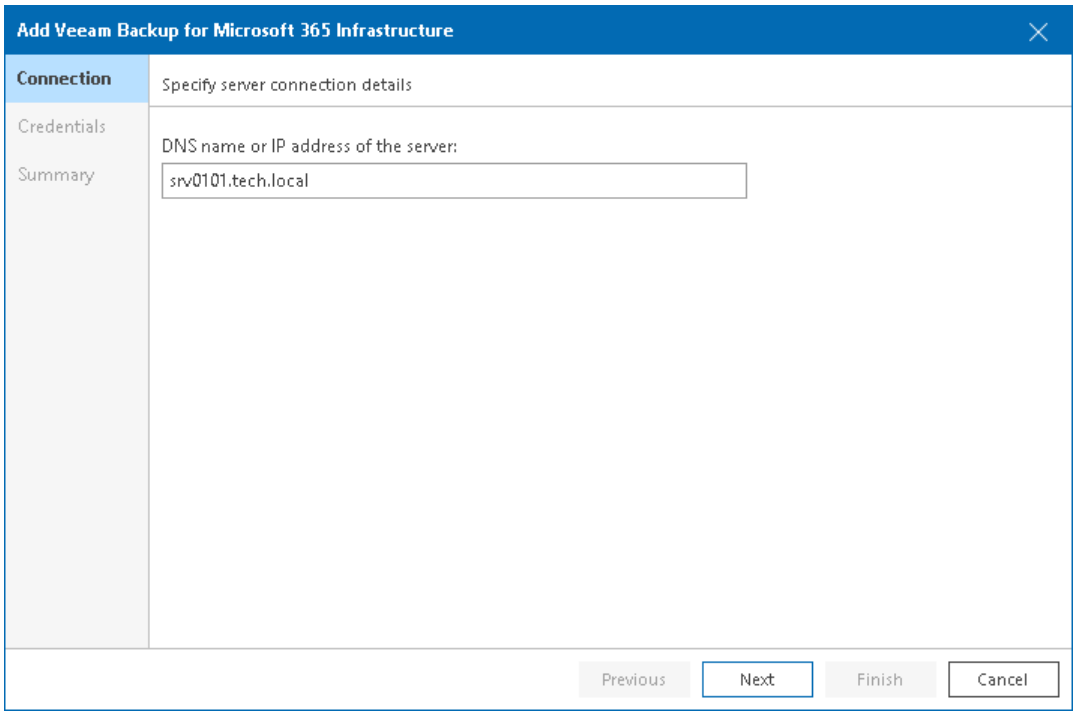
Step 2. Choose Server Type

At the first step of the wizard, click **Veeam Backup for Microsoft 365**.



Step 3. Specify Server Name

At the **Connection** step of the wizard, enter DNS or IP address of the Veeam Backup for Microsoft 365 server that you want to connect.



Step 4. Specify Credentials

At the **Credentials** step of the wizard:

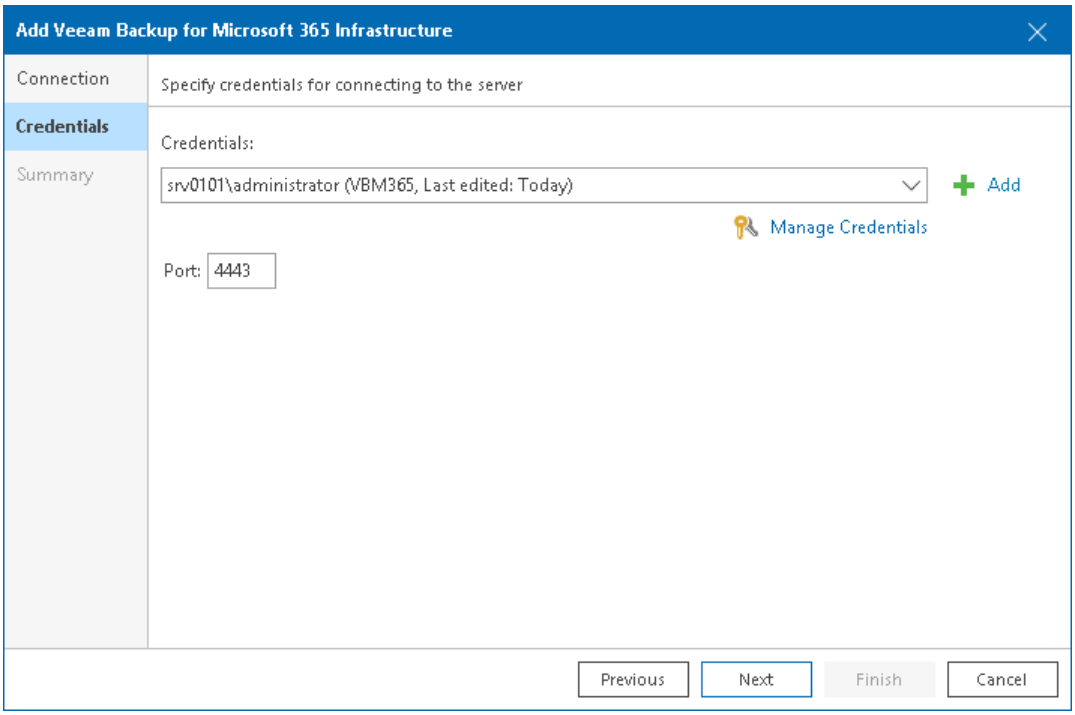
1. Click **Add** and specify credentials of the user account for connecting to the server.

   For details on adding credentials records, see section Credentials Manager of Veeam ONE Monitoring Guide.

   For details on on permissions required to connect to Veeam Backup for Microsoft 365, see Connection to Veeam Backup for Microsoft 365 Servers.

2. Change the port number if required.

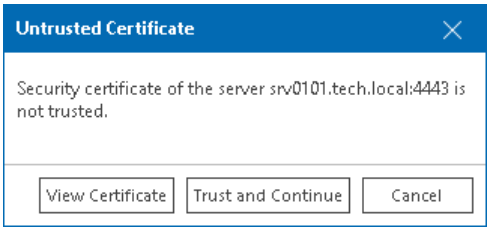
   By default, port 4443 is used for communication with Veeam Backup for Microsoft 365 servers.



3. When you add a Veeam Backup for Microsoft 365 server, Veeam ONE saves to the configuration database a thumbprint of the TLS certificate installed on the server. During every subsequent connection to the server, Veeam ONE uses the saved thumbprint to verify the server identity and avoid the man-in-the-middle attack.

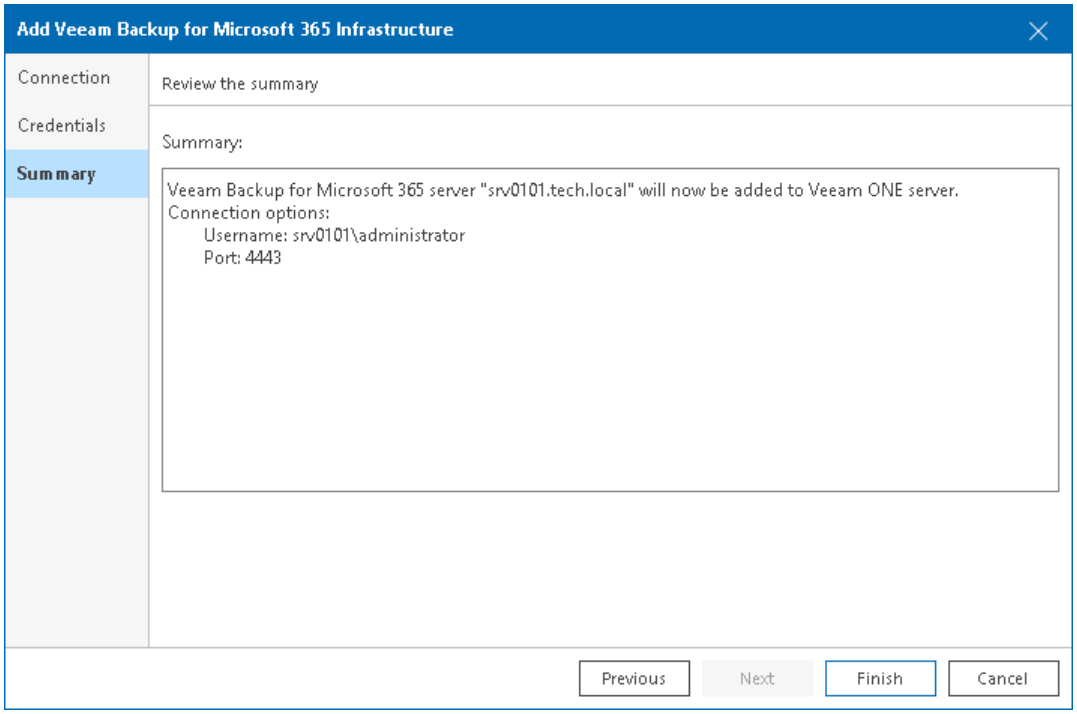
   If the certificate installed on the server is not trusted, Veeam ONE displays a warning.

   - To view detailed information about the certificate, click **View Certificate**.
   - If you trust the server, click **Trust and Continue**.
   - If you do not trust the server, click **Cancel**. Veeam ONE will display an error message, and you will not be able to connect to the server.



Step 5. Review Connection Settings

At the **Summary** step of the wizard, review the connection details and click **Finish**.



Keep in mind that it may take a while for Veeam ONE to collect and display configuration and performance data for the newly added Veeam Backup for Microsoft 365 server and managed backup infrastructure components. The approximate collection rate is around 600 000 protected Microsoft 365 objects per hour.

Connecting VMware vSphere Servers

To collect data about VMware vSphere infrastructure objects, you must configure connections to infrastructure servers in Veeam ONE Client. You can connect the following types of servers:

- vCenter Servers
- Standalone ESXi hosts

To configure a connection to a VMware vSphere server, take the following steps.

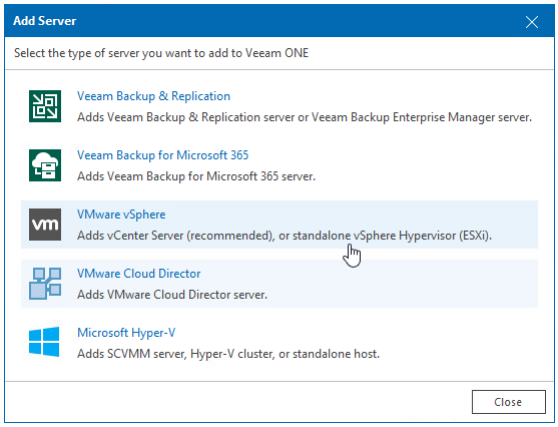
Step 1. Launch Add Server Wizard

To launch the **Add Server** wizard, open Veeam ONE Client and do one of the following:

- In the main menu, click **Add Server**.
- Press `[CTRL+I]` on the keyboard.
- At the bottom of the inventory pane, open the **Virtual Infrastructure**, right-click the **Virtual Infrastructure** node and choose **Add Server** from the shortcut menu.

Step 2. Choose Server Type

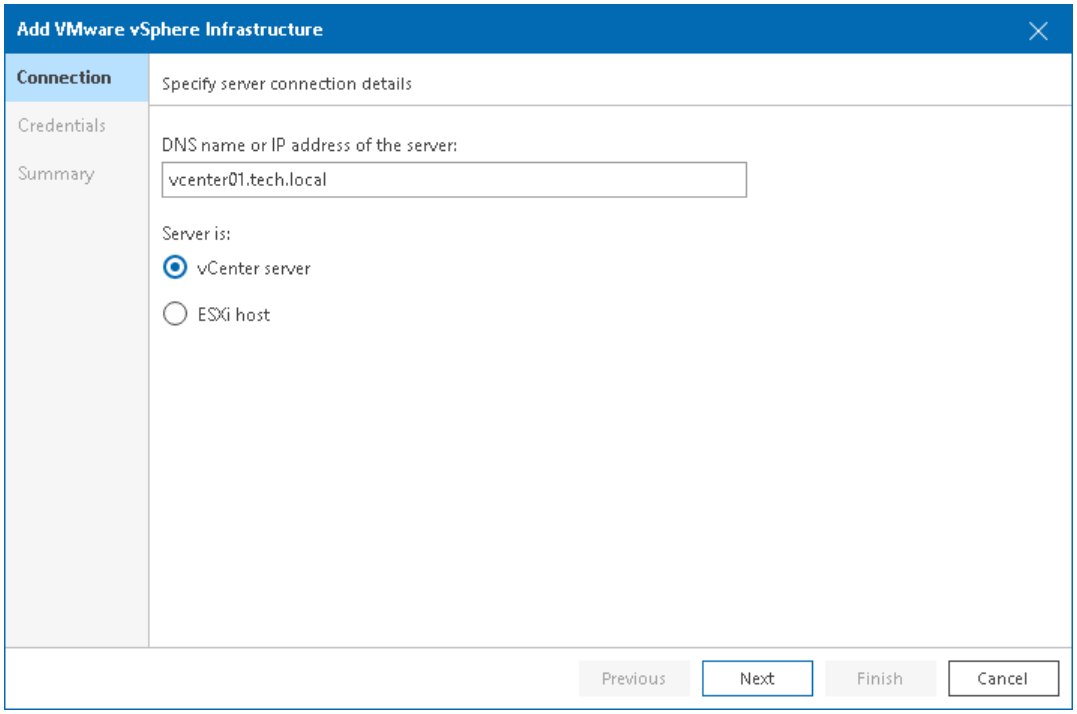
At the first step of the wizard, click **VMware vSphere**.



Step 3. Specify Server Name and Role

At the **Connection** step of the wizard:

1. Specify DNS name or IP address of the server that you want to connect.
2. Specify the server role — vCenter Server or a standalone ESXi host.



Step 4. Specify Credentials

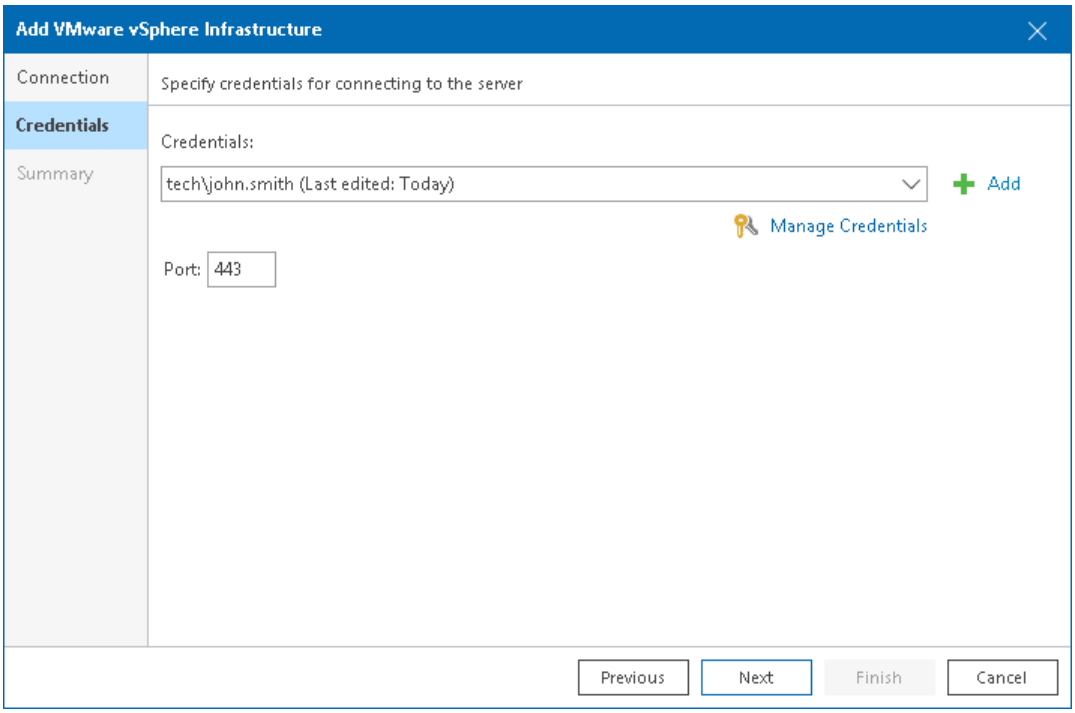
At the **Credentials** step of the wizard:

1. Click **Add** and specify credentials of the user account for connecting to the server.

   For details on adding credentials records, see section Credentials Manager of Veeam ONE Monitoring Guide. For details on account permissions, see Connection to Virtual Servers.

2. Change the port number if required.

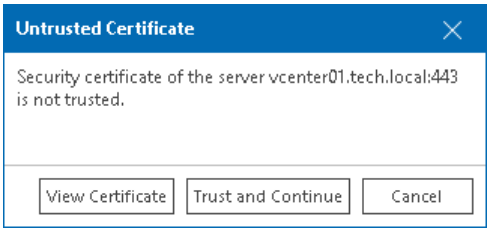
   By default, port 443 is used for communication with VMware vSphere servers.



3. When you add a vCenter Server or ESXi host, Veeam ONE saves to the configuration database a thumbprint of the TLS certificate installed on the vCenter Server or ESXi host. During every subsequent connection to the server, Veeam ONE uses the saved thumbprint to verify the server identity and avoid the man-in-the-middle attack.

   If the certificate installed on the server is not trusted, Veeam ONE displays a warning.

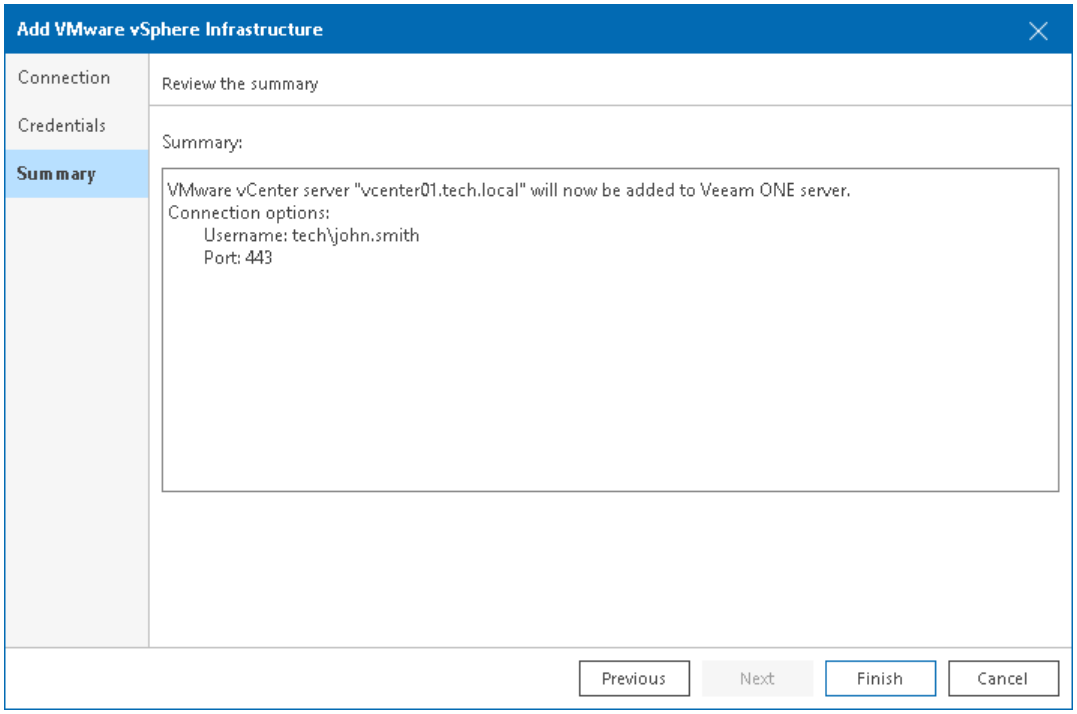
   - To view detailed information about the certificate, click **View Certificate**.
   - If you trust the server, click **Trust and Continue**.
   - If you do not trust the server, click **Cancel**. Veeam ONE will display an error message, and you will not be able to connect to the server.



Step 5. Review Connection Settings

At the **Summary** step of the wizard, review the connection details and click **Finish**.

Note that it may take a while for Veeam ONE to collect and display data for the connected server and its child objects.



Step 6. Specify VM Guest OS Credentials

After you connect one or more VMware vSphere servers, you must specify credentials of an account that will be used to collect data from Windows-based guest OSes on VMs. If you do not specify guest OS credentials, Veeam ONE will use connection credentials to display guest OS data in monitoring dashboards, alarms and reports.

You can specify the account credentials for VM guest OS at the following levels of the VMware vSphere infrastructure:

- VMware vSphere infrastructure
- VM containers, such as hosts and clusters
- Individual VMs

If you specify guest OS account credentials at multiple levels, Veeam ONE will use the following order of priority: VM > VM containers > VMware vSphere infrastructure. For example, if account credentials are specified both at the VM and VM container level, Veeam ONE will collect guest OS data using an account set at the VM level.

Specifying Account Credentials for VMware vSphere Infrastructure

You can specify account credentials at the level of the VMware vSphere infrastructure. Veeam ONE will use this account to connect to all VMs running on VMware vSphere hosts unless you specify other credentials for specific VMs or VM containers.

To specify account credentials for all VMs in the VMware vSphere infrastructure:

1. Open Veeam ONE Client.
2. In the main menu, click **Settings** and select **Server Settings**.

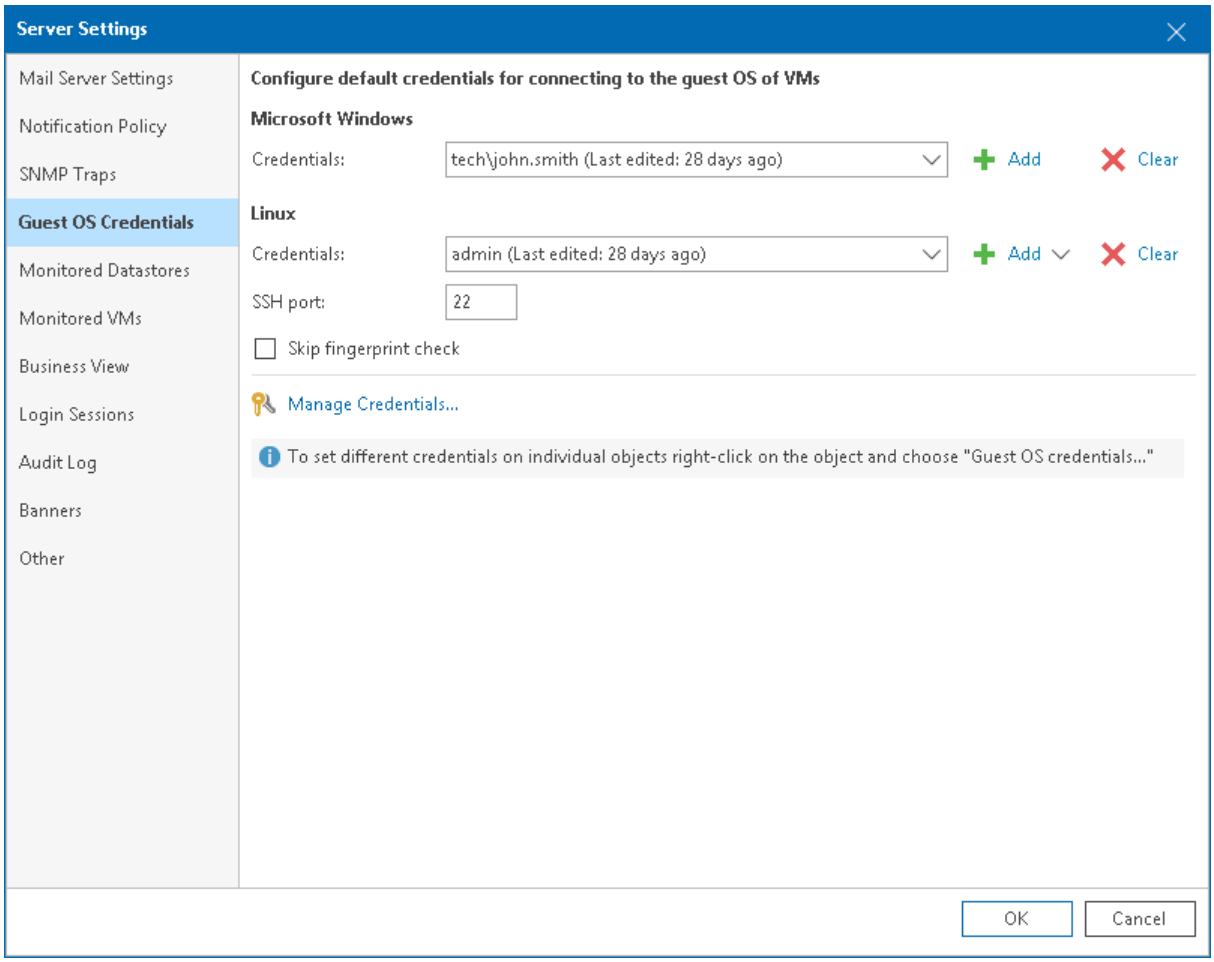
   Alternatively, press the `[CTRL+S]` on the keyboard.
3. In the **Server Settings** window, open the **Guest OS Credentials** tab.
4. Specify guest OS credentials:
   - In the **Microsoft Windows** section, select credentials of an account that will be used to collect data from the guest OS of Windows-based VMs. To create a new credentials record, click **Add**.
   - In the **Linux** section, select credentials of an account that will be used to collect data from the guest OS of Linux-based VMs. To create a new credentials record, click **Add** and select **Standard account** or **Linux private key**.

     In the **SSH port** field, change the default connection port if required.

     To disable fingerprint validation for Linux VMs, select **Skip fingerprint check**.

   To access credentials manager, click the **Manage Credentials** link. For more information on working with credentials, section Credentials Manager of Veeam ONE Monitoring Guide.

5. Click **OK**.



Specifying Account Credentials for Containers and VMs

You can specify account credentials at the level of specific VMs or VM containers. This can be helpful if an account specified at the level of the VMware vSphere infrastructure does not have enough permissions on specific VMs or VM containers.

To specify account credentials for individual VMs or VM containers:

1. Open Veeam ONE Client.
2. At the bottom of the inventory pane, click **Virtual Infrastructure**.
3. Right-click the necessary VM and select **Guest OS Credentials** from the shortcut menu.
4. In the **Guest OS Credentials** window, specify credentials of a Windows or Linux account that will be used to collect guest OS data from VMware vSphere VMs.
5. Select **Propagate credentials to child objects** to use the specified account credentials to connect to child objects of a container.
6. Click **OK**.

Connecting VMware Cloud Director Servers

To collect data about VMware Cloud Director infrastructure objects, you must configure connections to VMware Cloud Director servers in Veeam ONE Client.

To configure a connection to a VMware Cloud Director server, take the following steps.

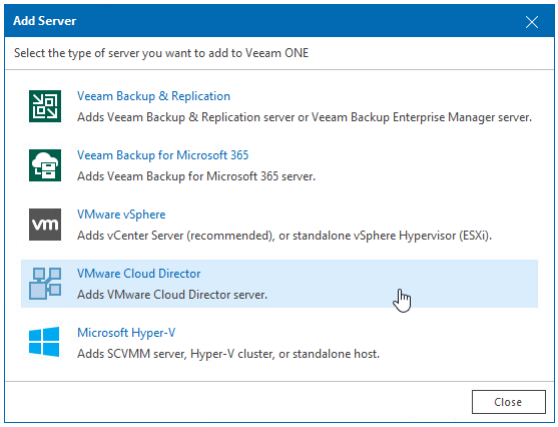
Step 1. Launch Add Server Wizard

To launch the **Add Server** wizard, open Veeam ONE Client and do one of the following:

- In the main menu, click **Add Server**.
- Press `[CTRL+I]` on the keyboard.

Step 2. Choose Server Type

At the first step of the wizard, click **VMware Cloud Director**.

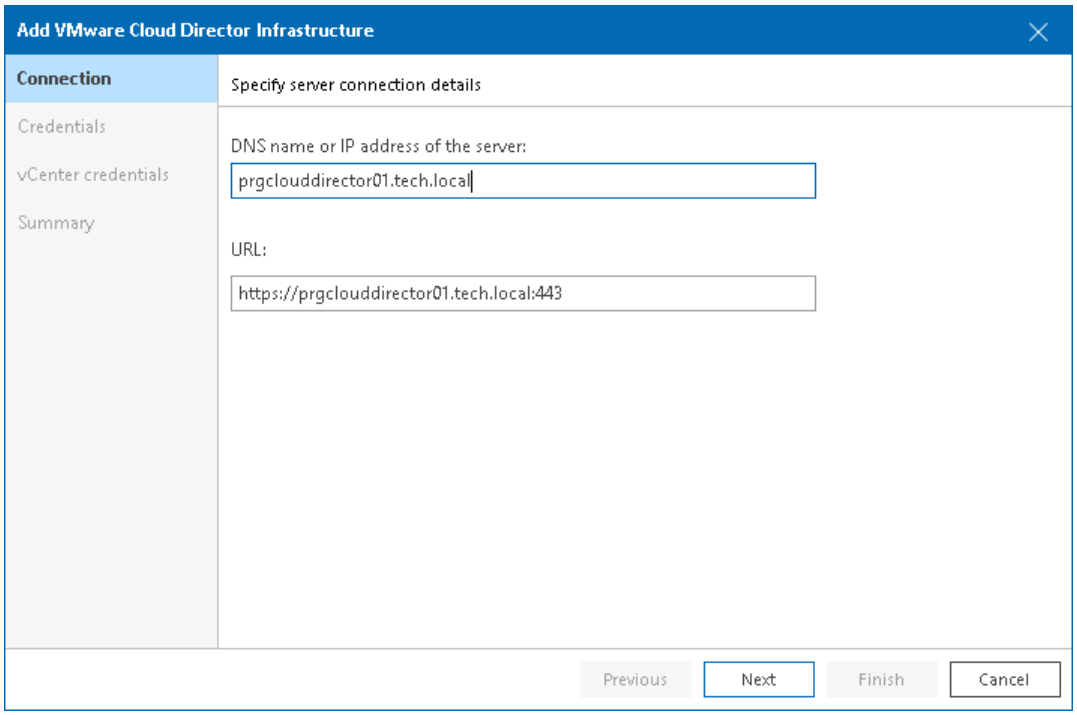


Step 3. Specify Server Name

At the **Connection** step of the wizard:

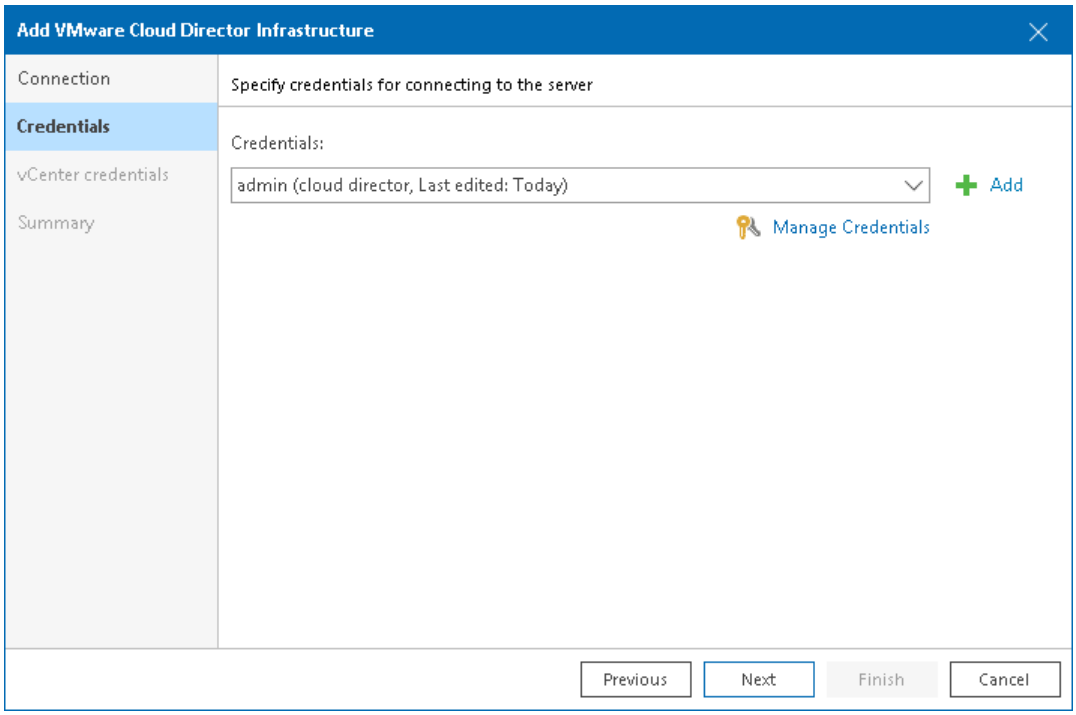
1. Enter DNS or IP address of the VMware Cloud Director server that you want to connect.
2. Change VMware Cloud Director URL if required.

   Veeam ONE populates the **URL** field with a URL used for connecting to the VMware Cloud Director server. The URL format is `https://<vcdservername>:443`, where `<vcdservername>` is the DNS name or IP address of the VMware Cloud Director server, and 443 is the default port. If you use port number other than `443`, you can change it in the **URL** field.



Step 4. Specify Credentials for VMware Cloud Director

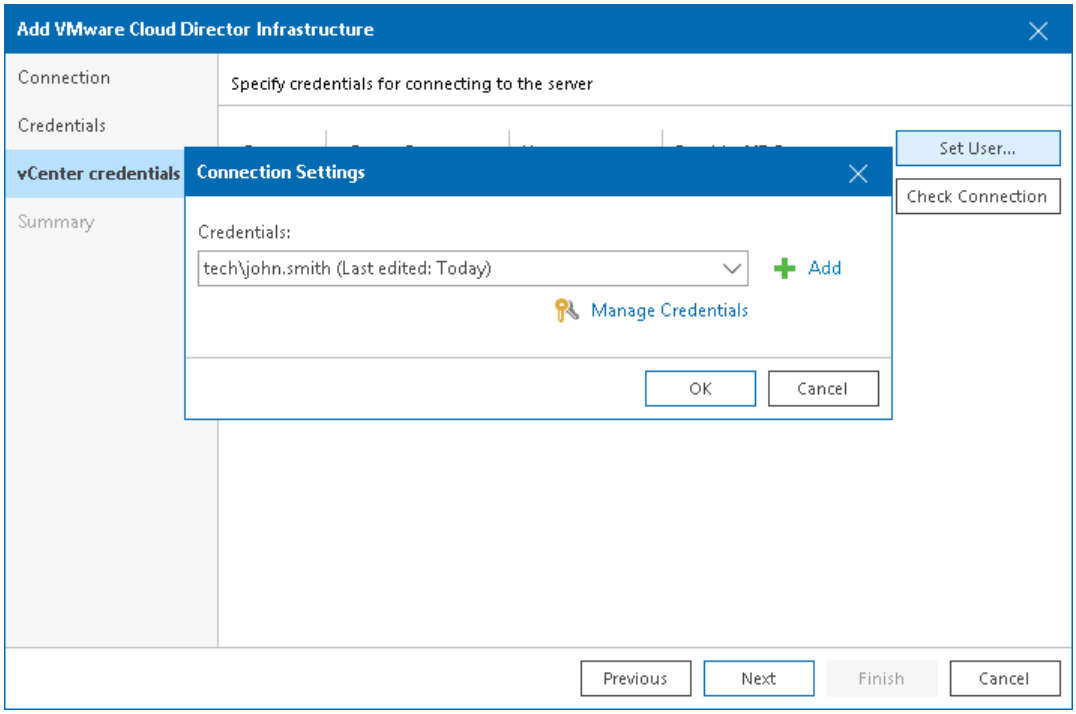
At the **Credentials** step of the wizard, click **Add** and specify credentials of the user account for connecting to VMware Cloud Director. For details on adding credentials records, see section Credentials Manager of Veeam ONE Monitoring Guide.



Step 5. Specify Credentials for Underlying vCenter Servers

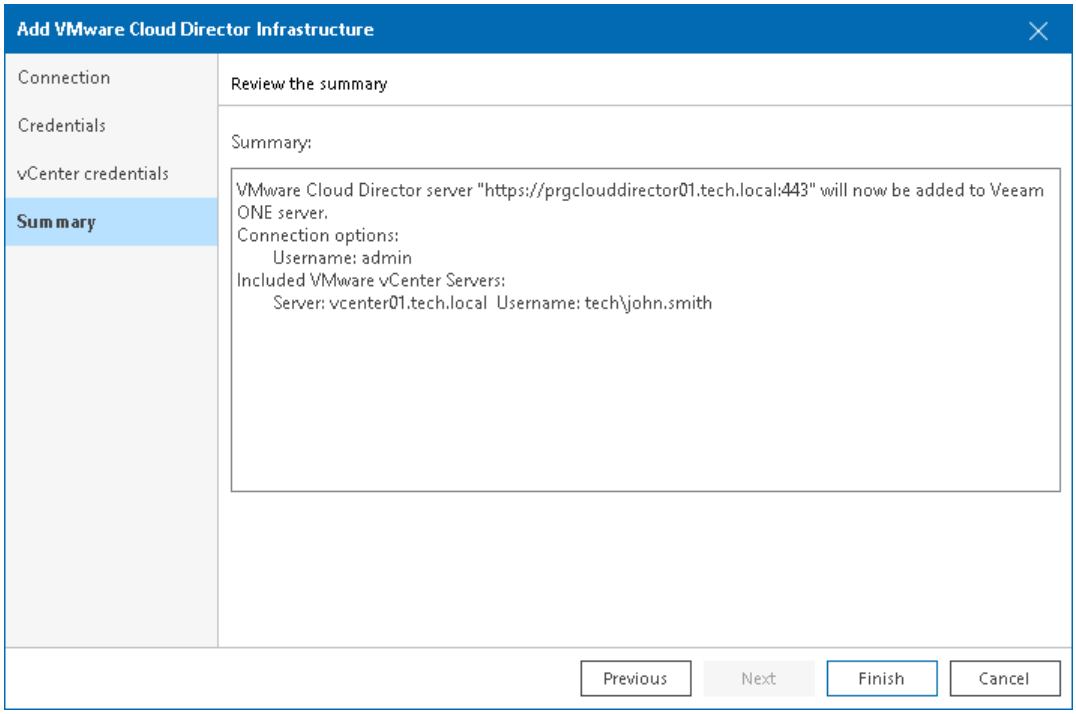
At the **vCenter credentials** step of the wizard, specify credentials for each vCenter Server attached to VMware Cloud Director. By default, Veeam ONE uses the same credentials that you have specified at the Credentials step of the wizard. However, if the underlying vCenter Servers must be connected under another user account, you can set the credentials for each vCenter Server manually:

1. Select the necessary vCenter Server in the list.
2. Click **Set User** and specify credentials to connect to the vCenter Server.
3. Repeat steps 1-2 for all vCenter Servers attached to VMware Cloud Director.
4. To test if connection settings are configured correctly, click the **Check Connection** button. Veeam ONE will attempt to establish connection with the vCenter Servers using the provided credentials.



Step 6. Review Connection Settings

At the **Summary** step of the wizard, review the connection details and click **Finish**.



The VMware Cloud Director hierarchy will become available in the **VMware Cloud Director view**. Note that it may take a while for Veeam ONE to collect and display data for the newly added VMware Cloud Director and its child objects.

When you connect VMware Cloud Director, Veeam ONE also connects underlying vCenter Servers and initiates data import. vCenter Servers become available in the Infrastructure View, and you can work with them as with regular VMware vSphere infrastructure servers. If the vCenter Server attached to VMware Cloud Director is already connected, Veeam ONE will only create an association between the VMware Cloud Director hierarchy and the vCenter Server.

Connecting Microsoft Hyper-V Servers

To collect data about Microsoft Hyper-V infrastructure objects, you must configure connections to Microsoft Hyper-V servers in Veeam ONE Client. You can connect the following types of servers:

- SCVMM server
- Failover clusters
- Standalone Hyper-V hosts

> **NOTE:**
>
> If you plan to connect an SCVMM server, make sure that SCVMM Admin Console is installed on the machine where you installed the Veeam ONE Server component. The version of the SCVMM Admin Console must be the same as the version of SCVMM server you are adding. For details, see section System Requirements.

To configure a connection to a Microsoft Hyper-V server, take the following steps.

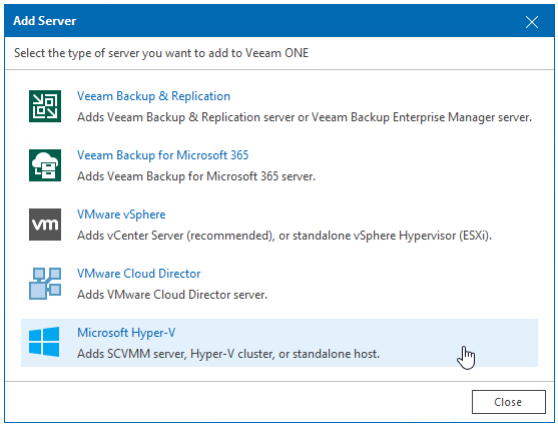
Step 1. Launch Add Server Wizard

To launch the **Add Server** wizard, open Veeam ONE Client and do one of the following:

- In the main menu, click **Add Server**.
- Press `[CTRL+I]` on the keyboard.
- At the bottom of the inventory pane, open the **Virtual Infrastructure**, right-click the **Virtual Infrastructure** node and choose **Add Server** from the shortcut menu.

Step 2. Choose Server Type

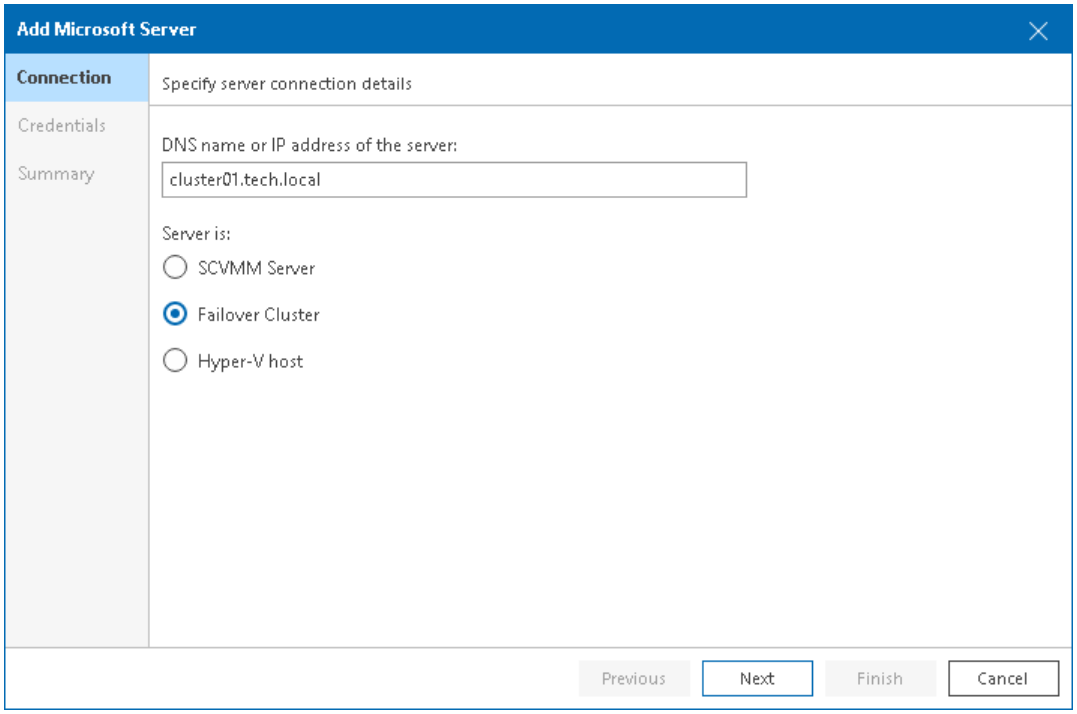
At the first step of the wizard, click **Microsoft Hyper-V**.



Step 3. Specify Server Name and Role

At the **Connection** step of the wizard:

1. Enter DNS name or IP address of the server that will be connected to Veeam ONE.
2. Specify the server type — SCVMM server, failover cluster or standalone host.



Step 4. Specify Credentials

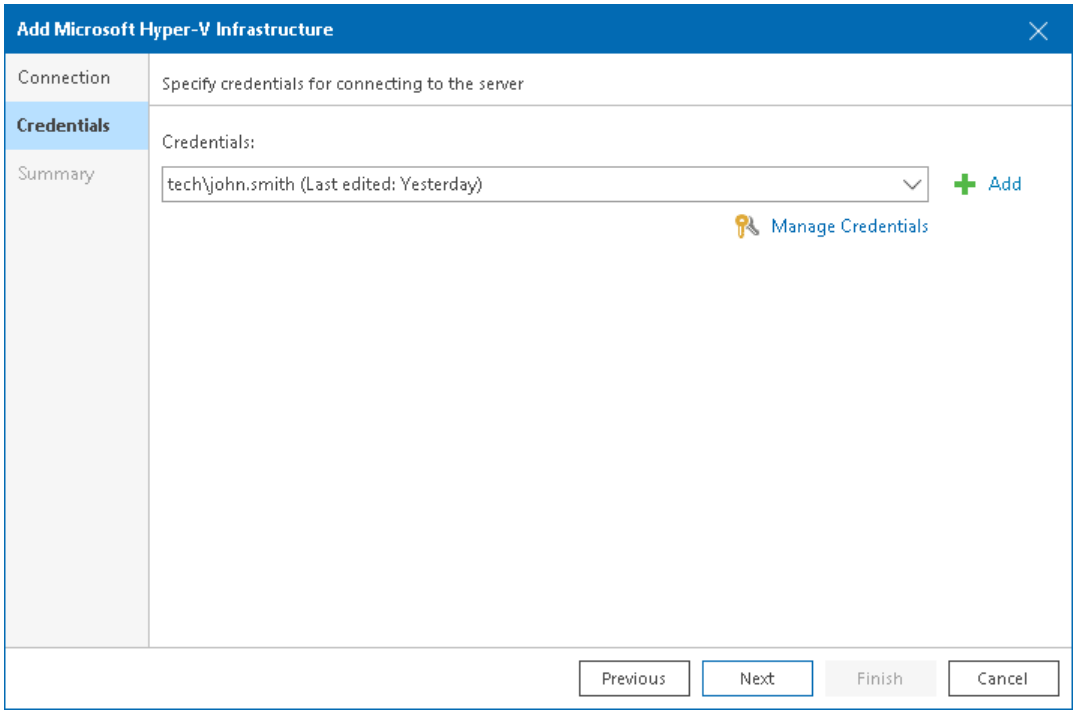
At the **Credentials** step of the wizard:

1. Click **Add** and specify credentials of the user account for connecting to the server.

   For details on adding credentials records, see section Credentials Manager of Veeam ONE Monitoring Guide.

2. [For SCVMM connection] Change the port number if required.

   By default, port `8100` is used as the VMM Administrator Console to VMM server port.



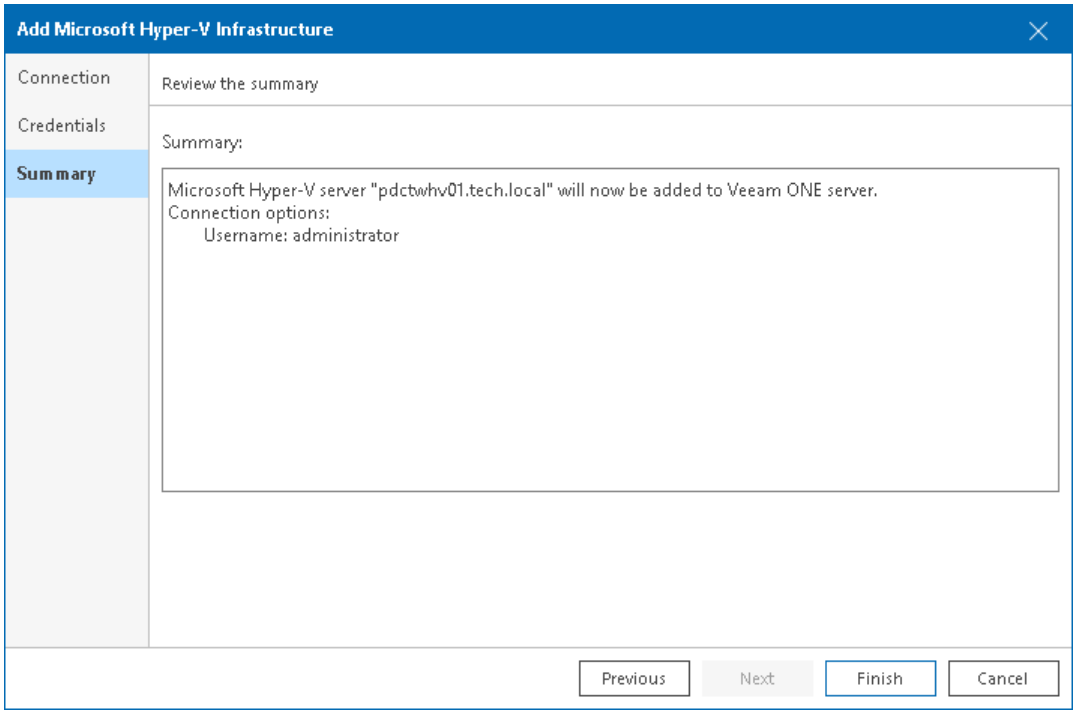
After you connect the first Microsoft Hyper-V server, Veeam ONE will open the **Server Settings** window prompting you to specify credentials for accessing the guest OS of Microsoft Hyper-V VMs. If you have already specified the credentials, the window will not be displayed.

For details, see Step 6. Specify VM Guest OS Credentials.

Step 5. Review Connection Settings

At the **Summary** step of the wizard, review the connection details and click **Finish**.

Note that it may take a while for Veeam ONE to collect and display the collected data for the newly added SCVMM server, failover cluster or host and its child objects.



Step 6. Specify VM Guest OS Credentials

After you connect one or more Microsoft Hyper-V servers, you must specify credentials of an account that will be used to collect data from Windows-based guest OSes on VMs. If you do not specify guest OS credentials, Veeam ONE will use connection credentials to display guest OS data (in particular, data about guest disks) in monitoring dashboards, alarms and reports.

You can specify the account credentials for VM guest OS at the following levels of the Microsoft Hyper-V infrastructure:

- Microsoft Hyper-V infrastructure
- VM containers, such as hosts and clusters
- Individual VMs

If you specify guest OS account credentials at multiple levels, Veeam ONE will use the following order of priority: VM > VM container > Microsoft Hyper-V infrastructure. For example, if account credentials are specified both at the VM and VM container level, Veeam ONE will collect guest OS data using an account set at the VM level.

Specifying Account Credentials for Microsoft Hyper-V Infrastructure

You can specify account credentials at the level of the Microsoft Hyper-V infrastructure. Veeam ONE will use this account to connect to all VMs running on Microsoft Hyper-V hosts unless you specify other credentials for specific VMs or VM containers.

To specify account credentials for all VMs in the Microsoft Hyper-V infrastructure:

1. Open Veeam ONE Client.
2. In the main menu, click **Settings** and select **Server Settings**.

   Alternatively, press the `[CTRL+S]` on the keyboard.
3. In the **Server Settings** window, open the **Guest OS Credentials** tab.
4. Specify guest OS credentials:
   - In the **Microsoft Windows** section, select credentials of an account that will be used to collect data from the guest OS of Windows-based VMs. To create a new credentials record, click **Add**.

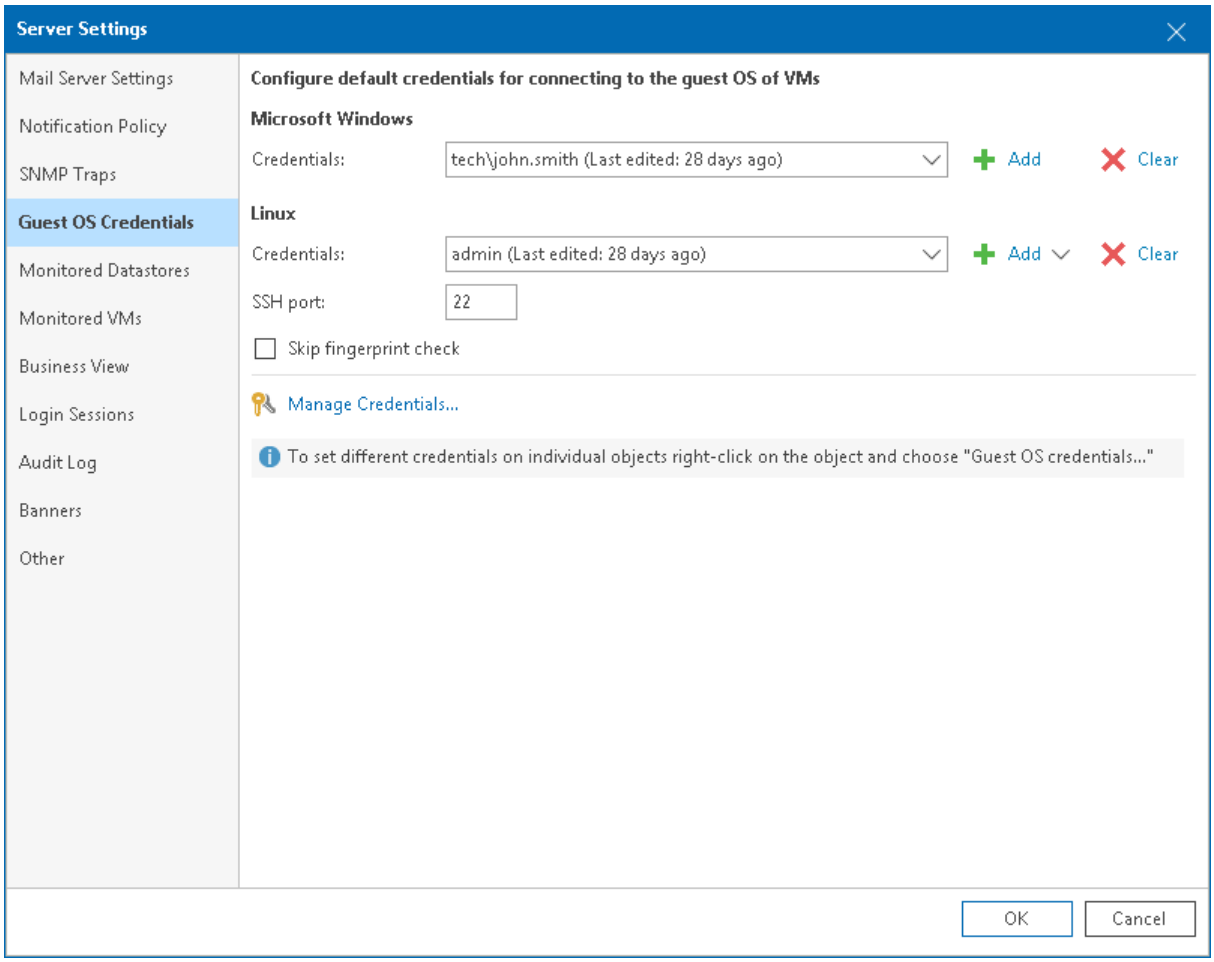
     For details on requirements to the account, see Connection to Microsoft Hyper-V VM Guest OS.
   - In the **Linux** section, select credentials of an account that will be used to collect data from the guest OS of Linux-based VMs. To create a new credentials record, click **Add** and select **Standard account** or **Linux private key**.

     In the **SSH port** field, change the default connection port if required.

     To disable fingerprint validation for Linux VMs, select **Skip fingerprint check**.

   To access credentials manager, click the **Manage Credentials** link. For more information on working with credentials, section Credentials Manager of Veeam ONE Monitoring Guide.

5. Click **OK**.



Specifying Account Credentials for Containers and VMs

You can specify account credentials at the level of specific VMs or VM containers. This can be helpful if an account specified at the level of the Microsoft Hyper-V infrastructure does not have enough permissions on specific VMs or VM containers.

To specify account credentials for individual VMs or VM containers:

1. Open Veeam ONE Client.
2. At the bottom of the inventory pane, click **Virtual Infrastructure**.
3. Right-click the necessary VM or VM container and select **Guest OS Credentials** from the shortcut menu.
4. In the **Guest OS Credentials** window, disable the **Use parent or default credentials** option and specify credentials of an account that will be used to collect guest OS data from Microsoft Hyper-V VMs.
5. Click **OK**.

Changing Server Connection Settings

In some situations, you might need to change connection settings for a monitored server. Consider the following examples:

- If you need to re-connect a server with another user name and/or password, you can change connection settings for this server.
- If the account you provided for a Veeam backup server does not have sufficient permissions to collect data from all backup infrastructure components, you can set custom connection settings for specific servers in your backup infrastructure.

To change connection settings for a server:

1. Open Veeam ONE Client.
2. At the bottom of the inventory pane, click **Veeam Backup & Replication**, **Veeam Backup for Microsoft 365**, **Virtual Infrastructure** or **VMware Cloud Director**.
3. In the inventory pane, right-click the server and choose **Connection Settings** from the shortcut menu.
4. Edit the user name, enter the password and/or change the port number (if applicable).
5. If you want to enable Veeam ONE dashboard integration in Veeam Backup & Replication, select the **Provide access to embedded dashboards for added backup servers** check box.

NOTE:

When changing connection settings, mind the following:

- When you change connection settings for a virtualization server, Veeam ONE disconnects the server and re-connects it with the new settings. When a virtual server is disconnected, previously discovered VMs remain available in the inventory tree. After the server is re-connected, its performance data will be updated. If the connection is not restored, only the history of performance data will be available in Veeam ONE.
- When you change connection settings for a backup server in the Veeam Backup Enterprise Manager hierarchy, a new job is automatically configured in Veeam ONE Reporting Sevice to collect data from this backup server.

Removing Server Connections

If you no longer want to monitor a virtualization or a backup server, you can remove a connection to it in Veeam ONE Client.

To remove a server connection:

1. Open Veeam ONE Client.
2. At the bottom of the inventory pane, click **Veeam Backup & Replication**, **Veeam Backup for Microsoft 365**, **Virtual Infrastructure** or **VMware Cloud Director**.
3. In the inventory pane, right-click the server you want to remove and choose **Remove Server** from the shortcut menu.

After you remove a server connection in Veeam ONE Client, connection to this server will be automatically removed in Veeam ONE Reporting Service.

> **NOTE:**
>
> When removing server connection, mind the following:
>
> - When you remove a server, historical performance and configuration data for the server and its child objects is deleted from the Veeam ONE database.
> - When you remove VMware Cloud Director, Veeam ONE withdraws connection to VMware Cloud Director server only. Connections to underlying vCenter Servers are not removed automatically — you must remove these connections manually.
> - When you delete Veeam Backup & Replication, Veeam ONE becomes unregistered on Veeam Backup & Replication for dashboard integrations.

Choosing Objects to Monitor and Report On

After you connect Veeam Backup & Replication, Veeam Backup for Microsoft 365, VMware vSphere, VMware Cloud Director or Microsoft Hyper-V servers, Veeam ONE automatically includes in the data collection scope all child objects managed by these servers. If you do not need to monitor and report on all managed objects, you can exclude them from the data collection scope.

Choosing VMs and VM Containers to Monitor and Report On

By default, Veeam ONE collects data about all VMs and VM containers (hosts, clusters, datastores and so on) on connected virtualization servers. If you do not want to monitor and report on specific VMs or VM containers, you can configure rules to include and exclude VMs and VM containers from the data collection scope.

You can refine the data collection scope with the following types of rules:

- **Inclusion rules** define VMs and VM containers that must be monitored and reported on. Out-of-the-box, Veeam ONE includes a default inclusion rule that adds to the data collection scope all VMs and VM containers on connected servers.
- **Exclusion rules** define VMs and VM containers that must not be monitored and reported on.

> **NOTE:**
>
> If you exclude all child objects of a container from monitoring, Veeam ONE will not collect monitoring and reporting data for the parent container.

To configure an inclusion or exclusion rule, perform the following steps.

Step 1. Disable or Delete the Default Inclusion Rule

If you want to create one or more VM inclusion rules, you must delete or disable the default inclusion rule. Otherwise Veeam ONE will keep collecting data about all VMs and VM containers.

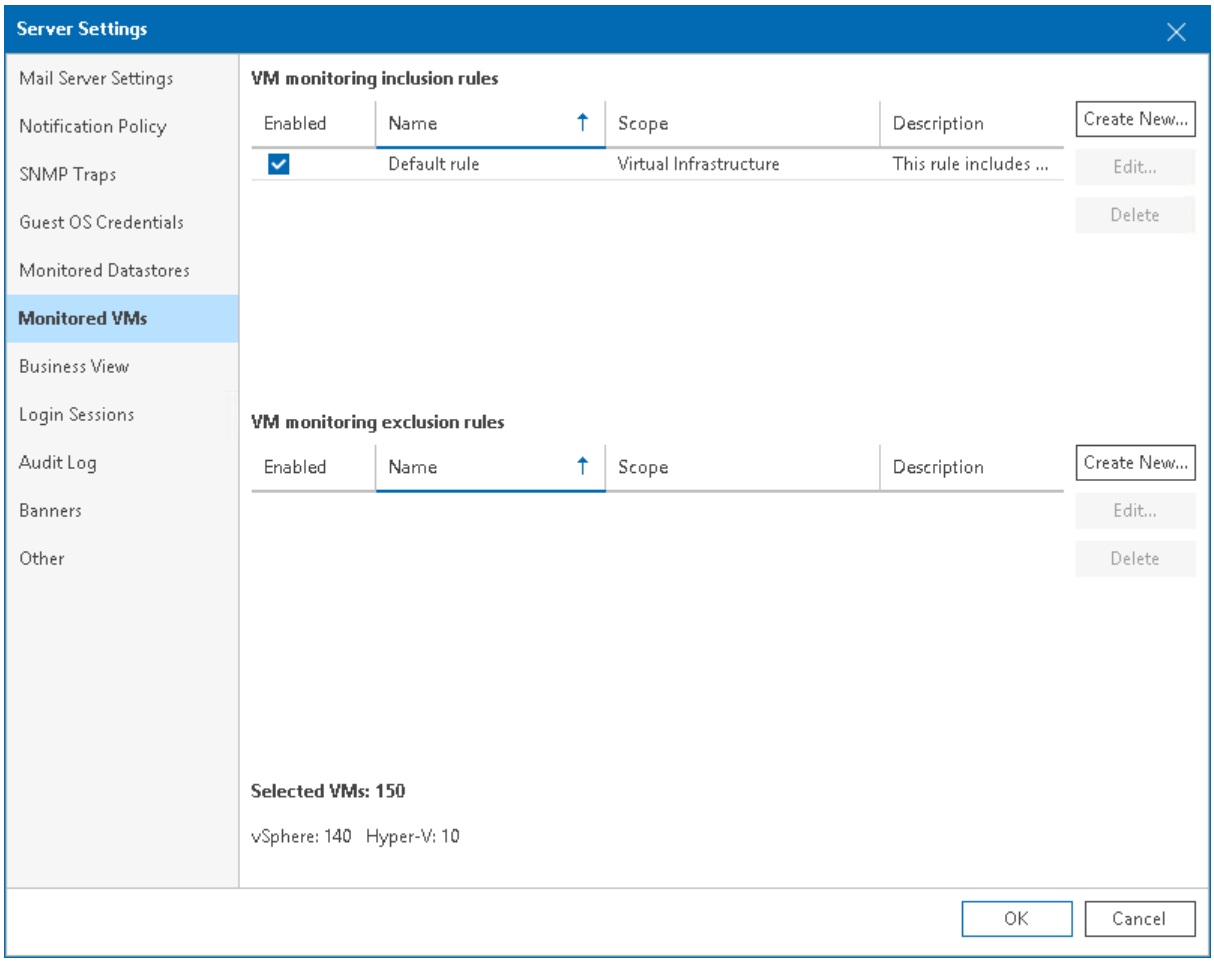
> **NOTE:**
>
> This step is not required if you want to create exclusion rules only.

To delete or disable the default inclusion rule:

1. Open Veeam ONE Client.
2. In the main menu, click **Settings** and select **Server Settings**.

   Alternatively, press the `[CTRL+S]` on the keyboard.
3. In the **Server Settings** window, open the **Monitored VMs** tab.
4. In the **VM Monitoring Inclusion Rules** section, delete or disable the default inclusion rule:
   - To disable the default inclusion rule, clear the **Enabled** check box next to the rule.

- To delete the default inclusion rule, select the rule and click **Delete** on the right.

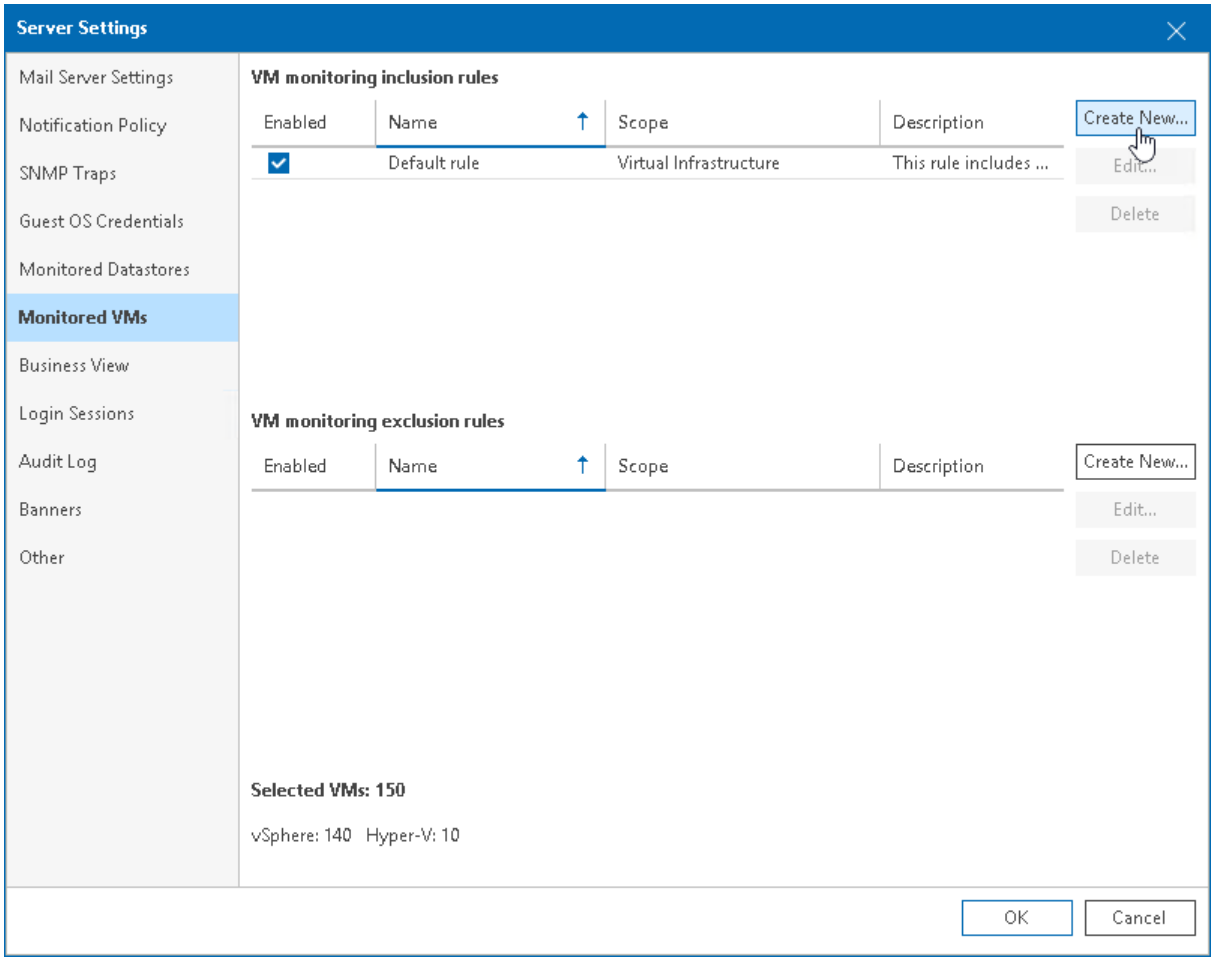


Step 2. Launch the Monitoring Rule Wizard

Launch the **Monitoring Rule** wizard:

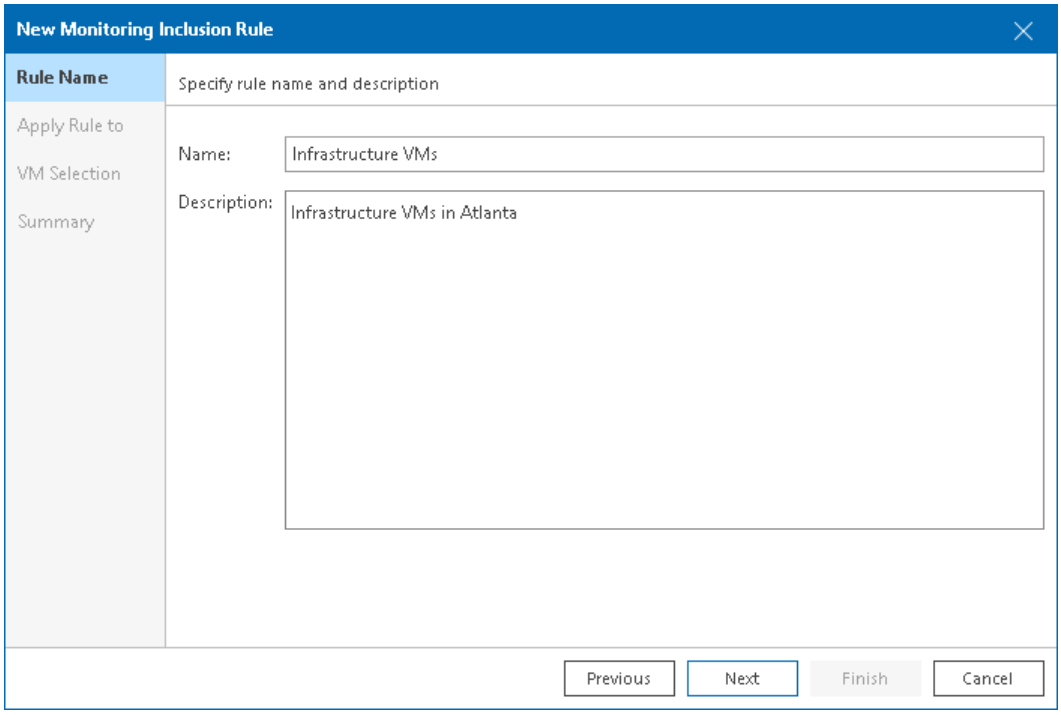
- To create an inclusion rule, in the **VM Monitoring Inclusion Rules** section, click **Create New**.

- To create an exclusion rule, in the **VM Monitoring Exclusion Rules** section, click **Create New**.



Step 3. Specify Rule Name and Description

At the **Rule Name** step of the wizard, specify a name and description for the new rule.

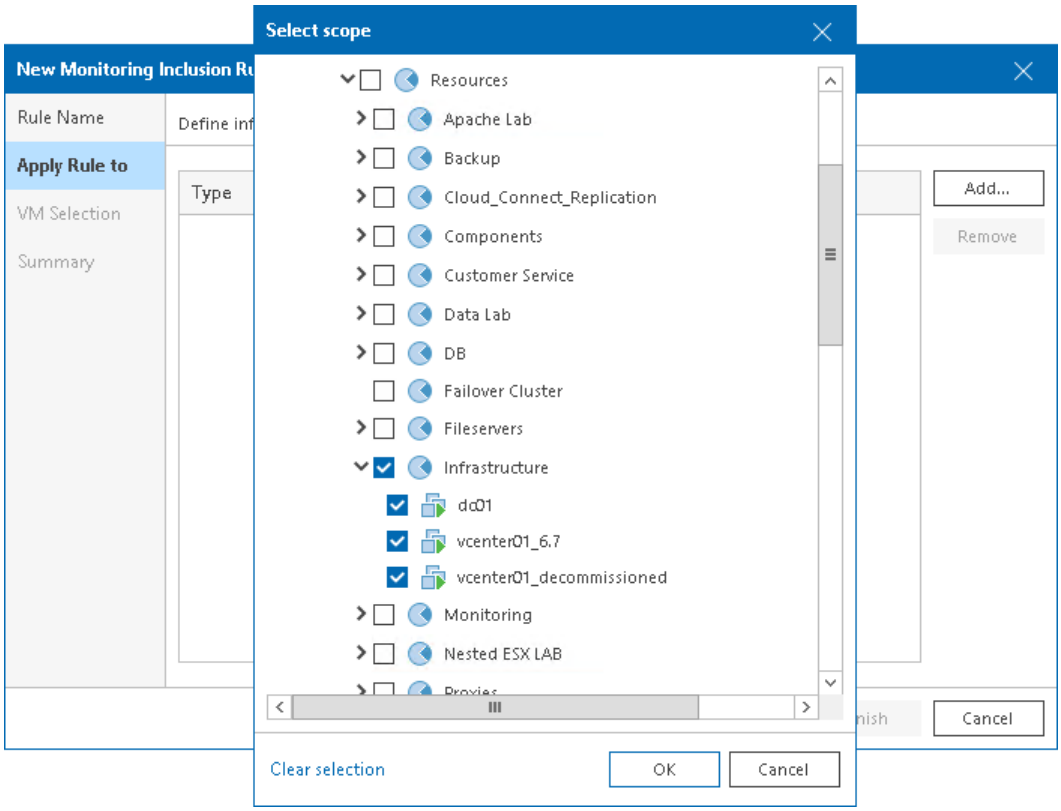


Step 4. Add Objects to the Rule

At the **Apply Rule to** step of the wizard, specify the scope of the virtual infrastructure to which the rule must apply:

1. Click **Add** and select *Infrastructure View*, *Business View* or *VMware Cloud Director View*.
2. In the **Select scope** window, select check boxes next to VM containers to which the rule must apply.

3. Click **OK**.



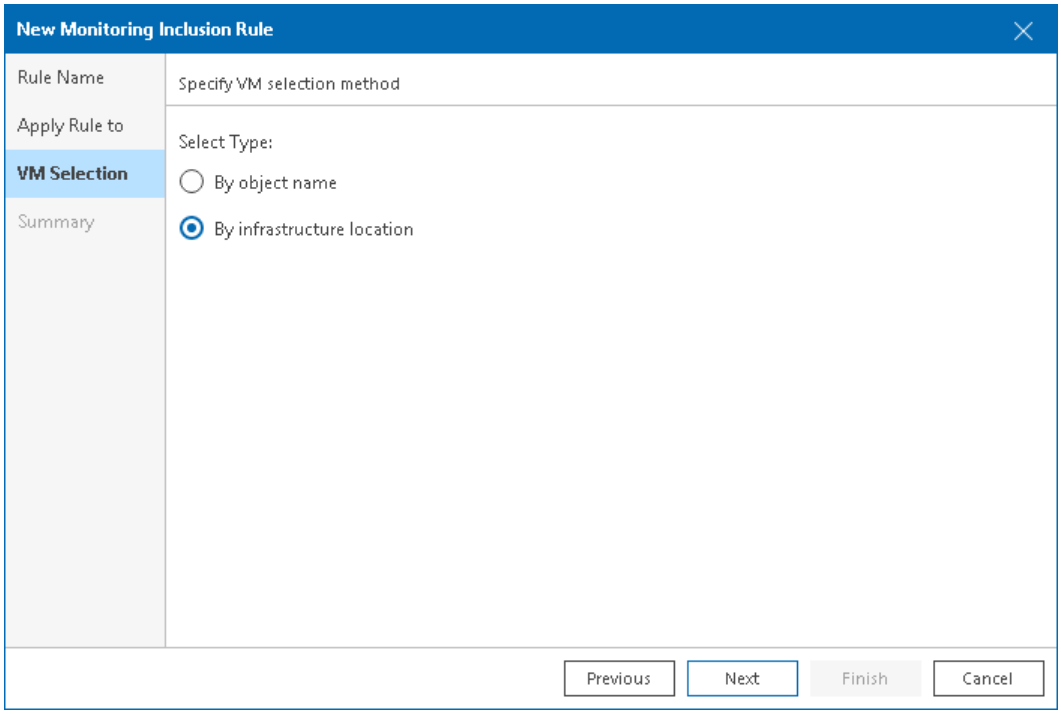
Step 5. Choose VM Selection Criterion

At the **VM Selection** step, choose a criterion according to which VMs and VM containers must be added to the rule:

- **By object name** — select this option if you want to add VMs to the rule based on VM names.

- **By infrastructure location** — select this option if you want to add to the rule VMs that belong to a specific level of the virtual infrastructure hierarchy (the level you specified at the **Apply Rule to** step of the wizard).

  You can use this selection criterion to find VMs that belong to a specific cluster, host, datastore or other VM container in the virtual infrastructure hierarchy.



Step 6. Specify Rule Conditions

The **Conditions** step of the wizard appears only if you have selected the **By object name** option at the **VM Selection** step. At this step, configure conditions for adding VMs to the rule by name:

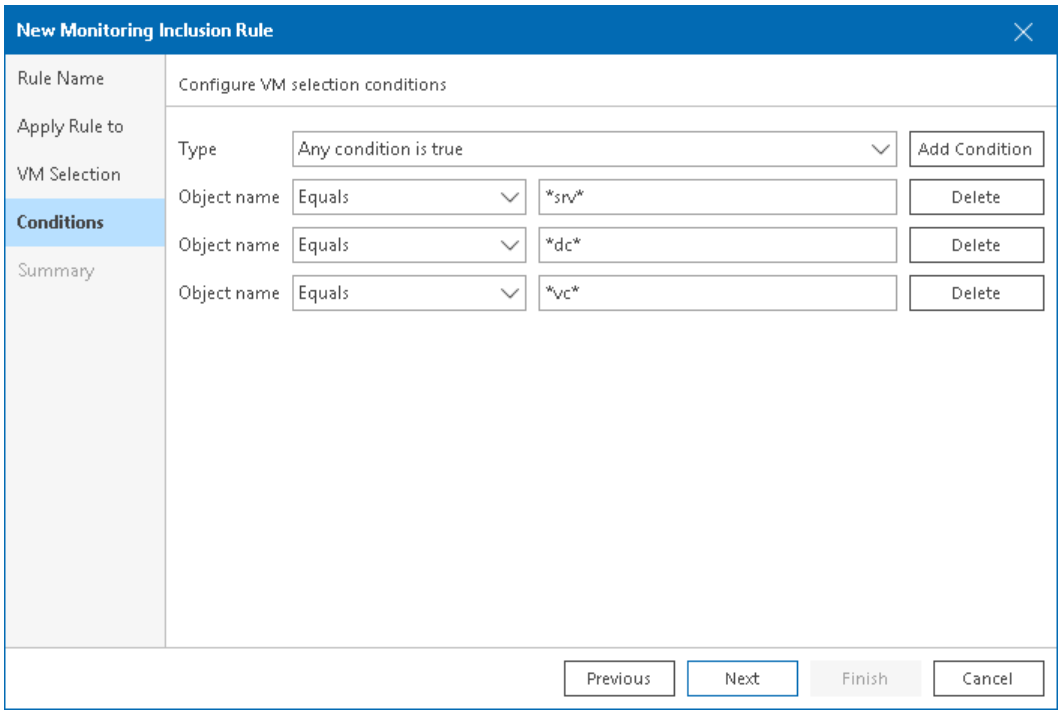
1. Click **Add Condition**.
2. From the **Object name** list, select a condition for adding VMs — *Equals* or *Not Equals*.
3. In the field next to the selected condition, specify the name of VMs to add to the rule.

   You can use the '*' (asterisk) and '?' (question mark) wildcards. The '*' (asterisk) character stands for zero or more characters. The '?' (question mark) stands for a single character. For example, if you want to find VM replicas created with Veeam Backup & Replication, you can create a rule with the '*_replica' name query.

4. If you add two or more conditions, link them with Boolean operators. From the **Type** list, select a Boolean operator to link the conditions:

   - **Any condition is true** — if at least one of the specified conditions is met, a VM will be added to the rule.

- **All conditions are true** – if all specified conditions are met, a VM will be added to the rule.



Step 7. Review the Configuration

At the **Summary** step, review the rule configuration and click **Finish** to exit the wizard.

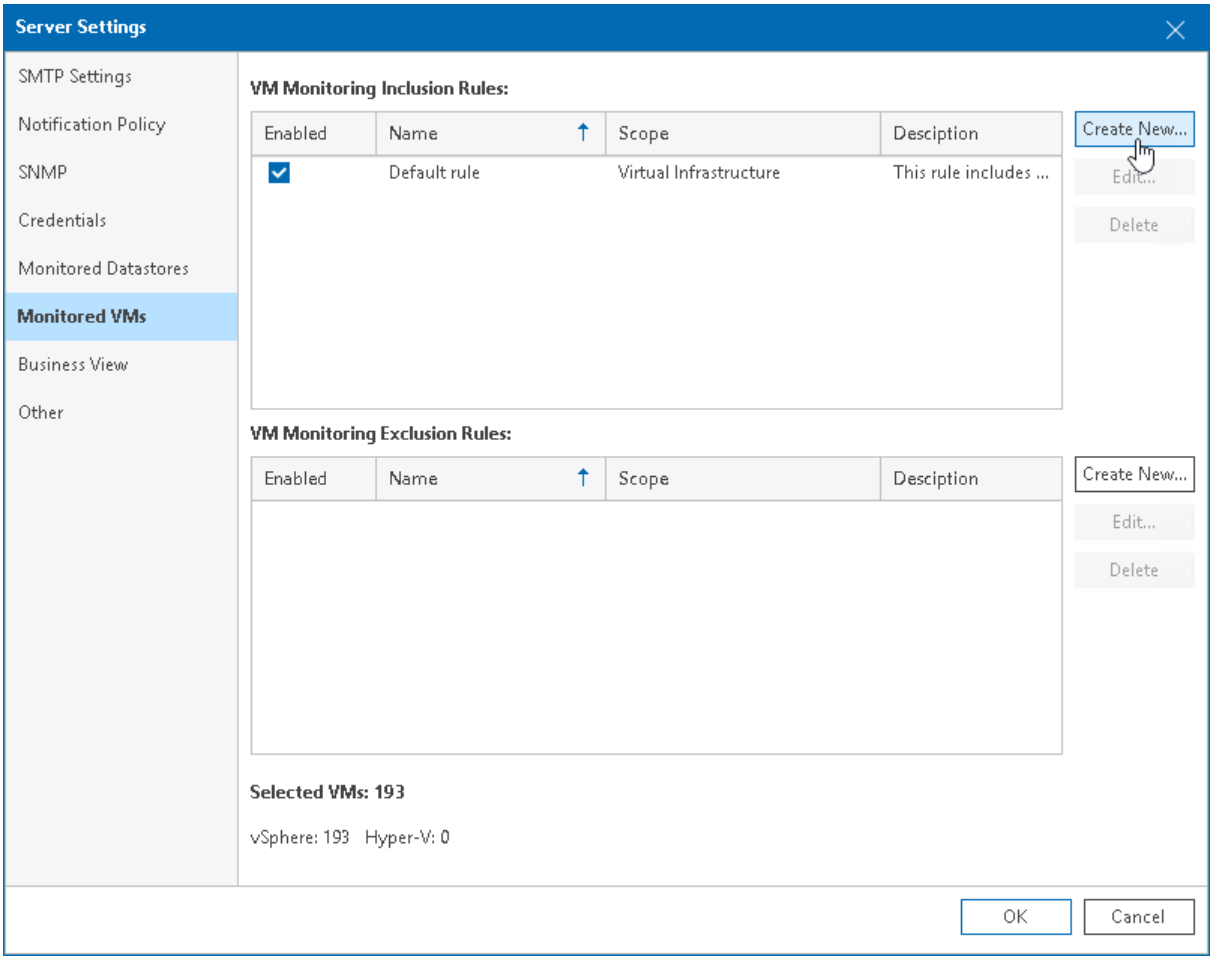
How to Create Inclusion Rule and Add VMs by Name

You can create a rule to include VMs in the data collection scope VMs whose names end with *'_srv'*:

1. Open Veeam ONE Client.
2. In the main menu, click **Settings** and select **Server Settings**.

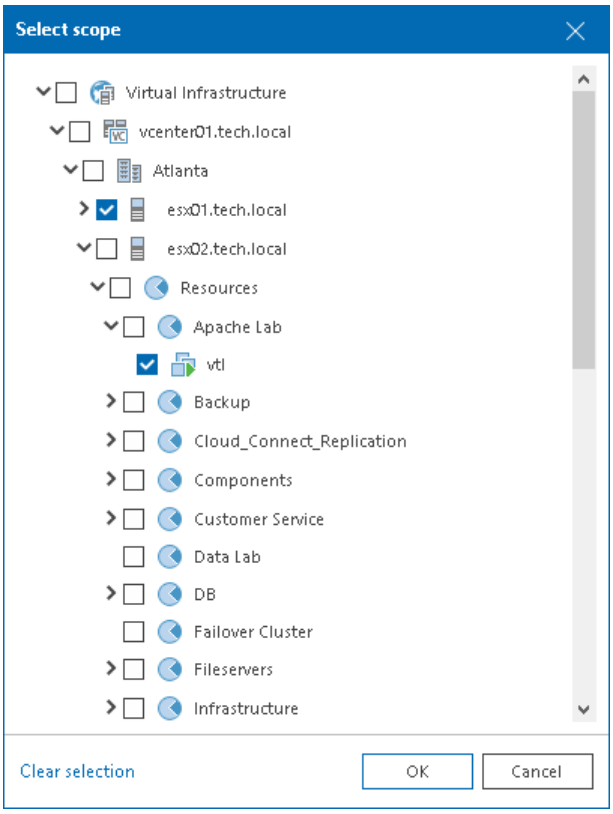
   Alternatively, press the `[CTRL+S]` on the keyboard.
3. In the **Server Settings** window, open the **Monitored VMs** tab.

4. On the **Monitored VMs** tab, in the **VM Monitoring Inclusion Rules** section, click **Create New**.



5. At the **Rule Name** step of the **Monitoring Rule** wizard, type the rule name. In the **Description** field, type the rule description.

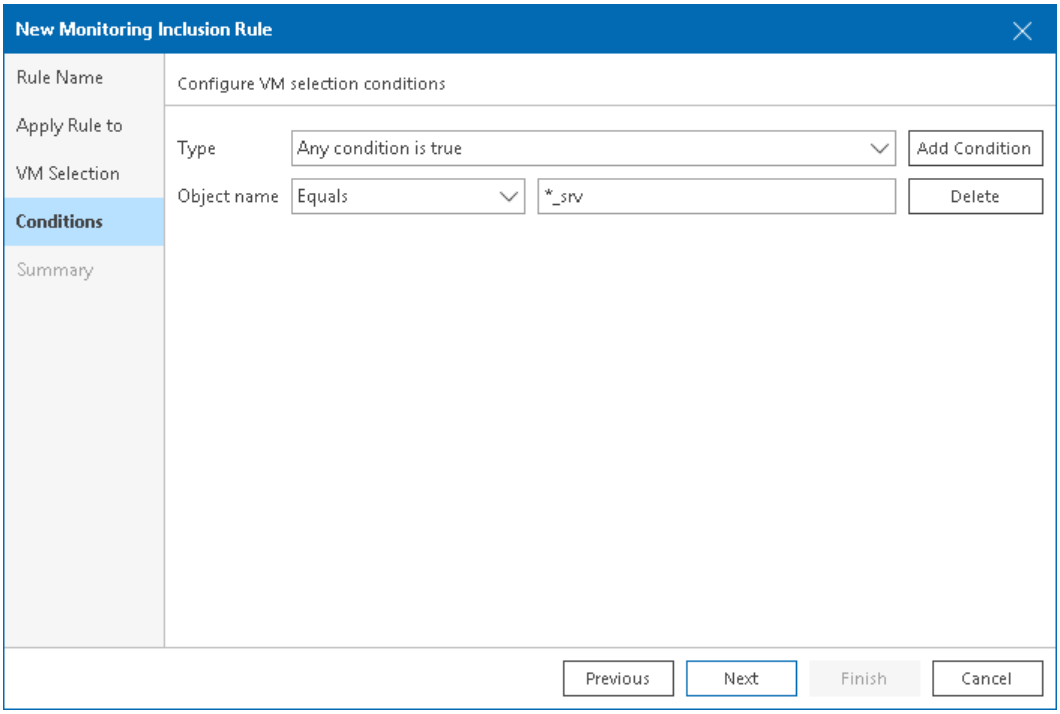
6. At the **Apply Rule To** step of the wizard, click **Add** and select *Infrastructure View*, *Business View* or *VMware Cloud Director View*. In the **Select scope** window, select check boxes next to containers to which the rule must apply.



7. At the **VM Selection** step of the wizard, choose **By object name**.
8. At the **Conditions** step of the wizard, perform the following steps:
   a. Click **Add Condition**.
   b. From the **Object name** list, select the *Equals* condition.

c. In the value field, type the *'*_srv'* query.

This will include in the data collection scope all VMs whose name ends with *'_srv'*.



9. At the **Summary** step of the wizard, review rule configuration and click **Finish**.

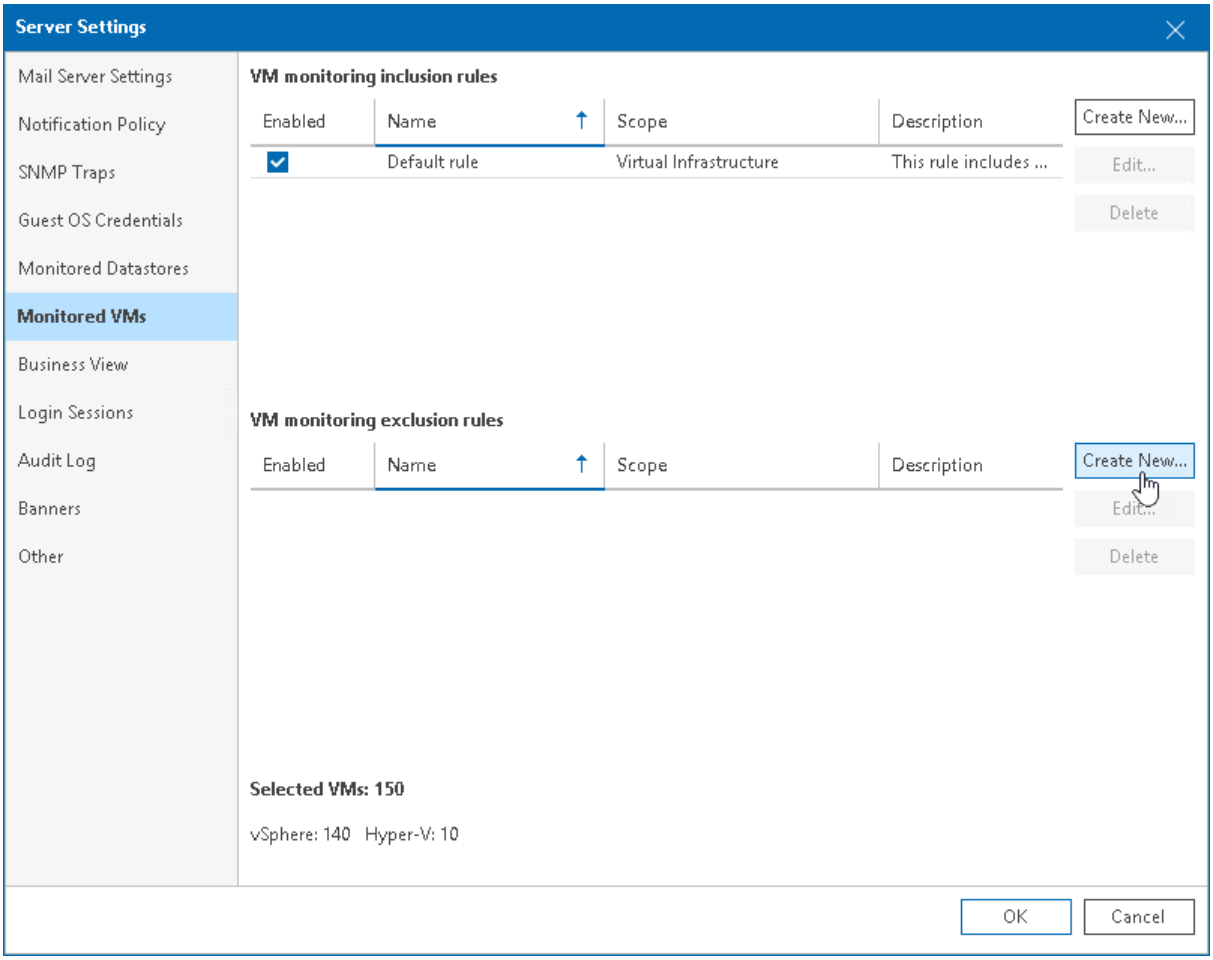
How to Create Exclusion Rule and Add VMs by Location

You can create a rule to exclude from the data collection scope VMs residing on a specific host:

1. Open Veeam ONE Client.
2. In the main menu, click **Settings** and select **Server Settings**.

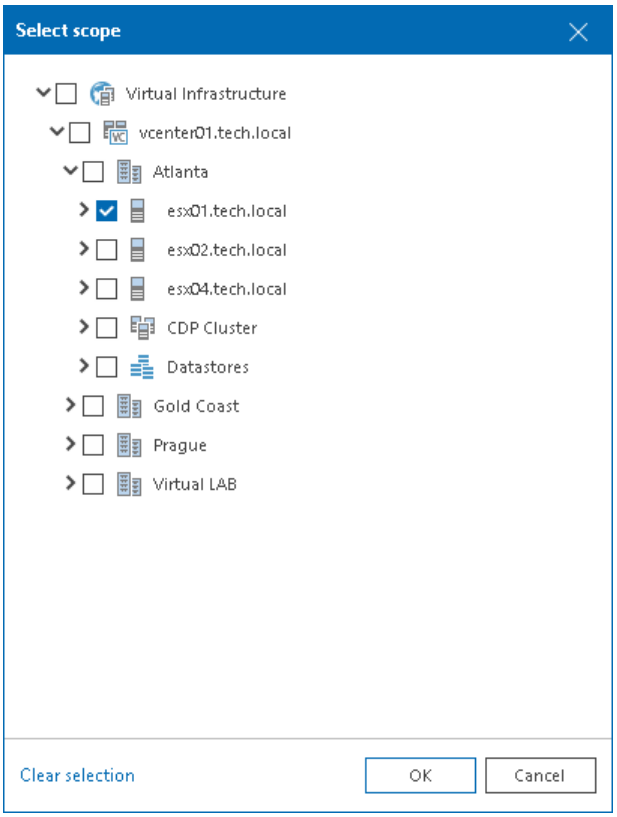
   Alternatively, press the `[CTRL+S]` on the keyboard.
3. In the **Server Settings** window, open the **Monitored VMs** tab.

4. On the **Monitored VMs** tab, in the **VM Monitoring Exclusion Rules** section, click **Create New**.

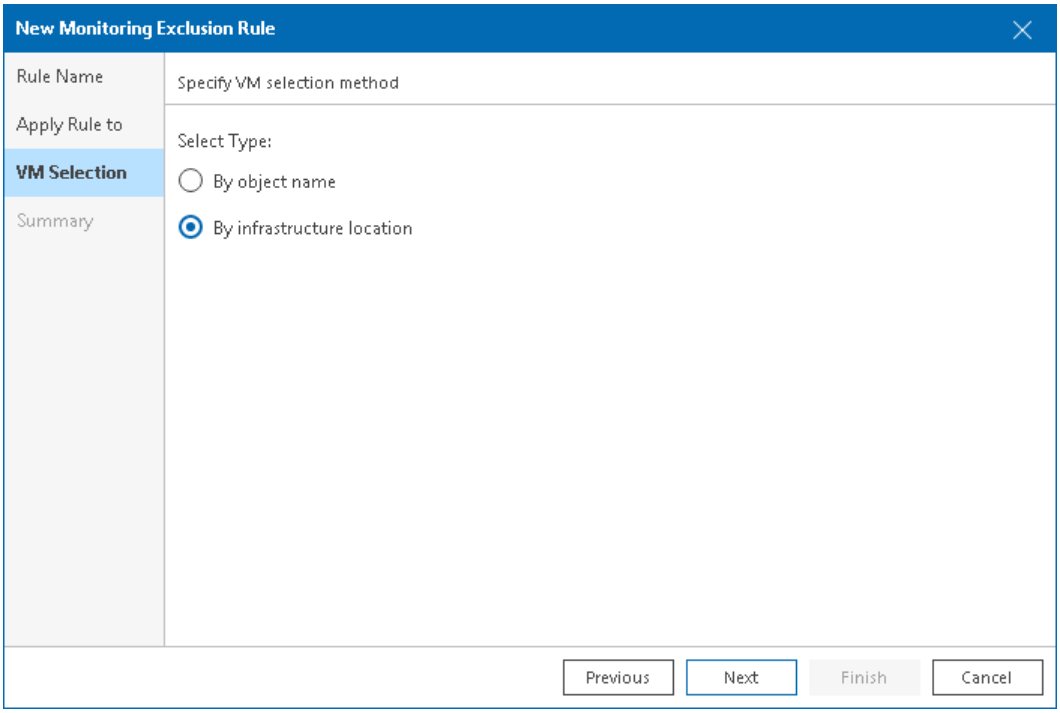


5. At the **Rule Name** step of the **Monitoring Rule** wizard, type the rule name. In the **Description** field, type the rule description.

6. At the **Apply Rule to** step of the wizard, click **Add** and select **Infrastructure View**. In the **Select scope** window, select the check box next to the host that must be excluded from the data collection scope.



7. At the **VM Selection** step of the wizard, choose **By infrastructure location**.



8. At the **Summary** step of the wizard, review rule configuration and click **Finish**.

Choosing Datastores to Report On

After you connect a VMware vSphere server in Veeam ONE Client, all datastores attached to this server are added to the data collection scope. If you do not need to collect data about specific datastores (for example, local datastores or datastores with ISO images), you can exclude these datastores from the collection scope.

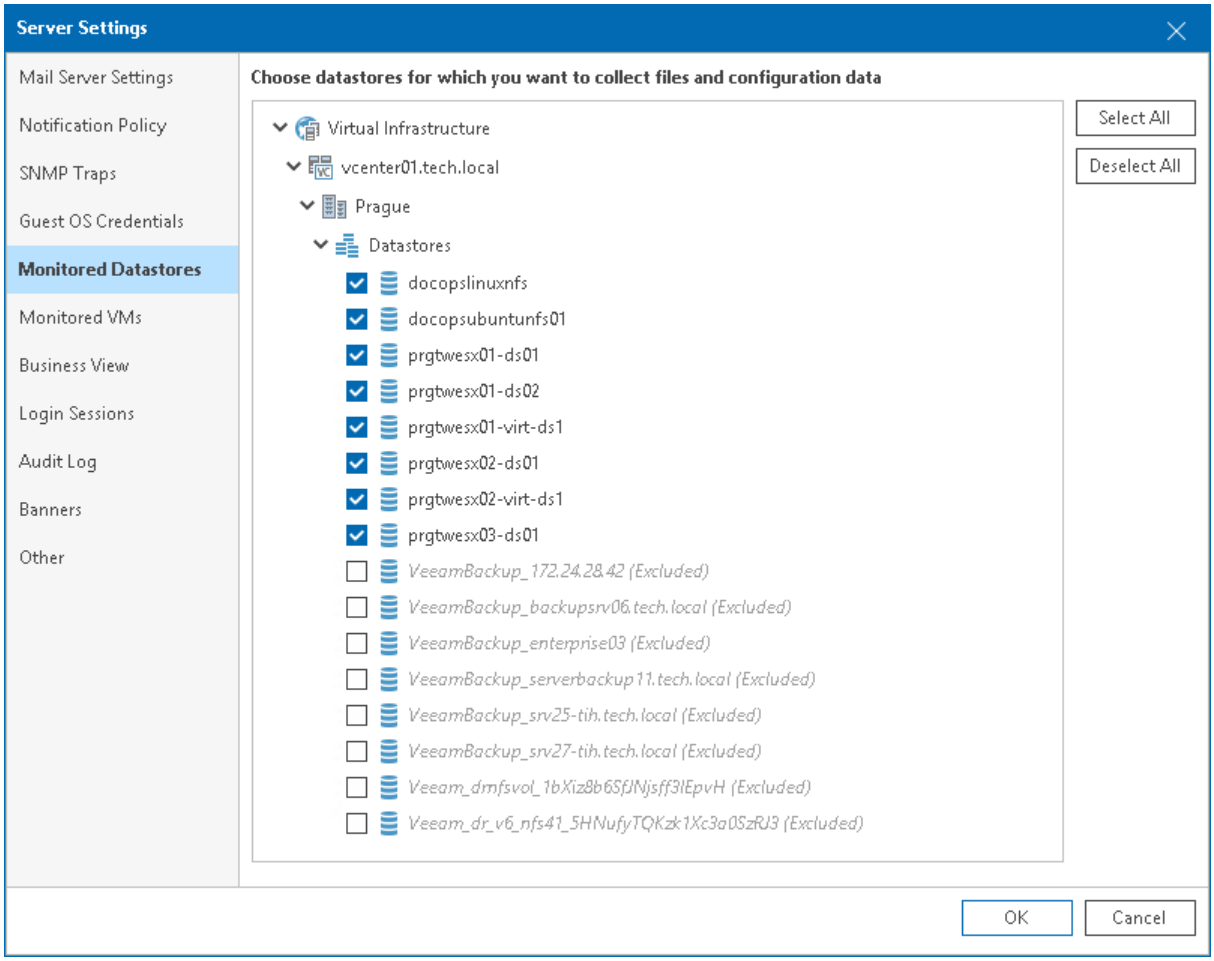
Excluding datastores will accelerate completion of a data collection sessions. Excluded datastores will not be reflected in reports that analyze and list the files residing on datastores (such as the *Garbage Files* and *Idle Templates* reports).

> **IMPORTANT!**
>
> Excluding datastores available for the VMware vSphere platform only.

To exclude one or more datastores from the data collection scope:

1. Open Veeam ONE Client.
2. In the main menu, click **Settings** and select **Server Settings**.

   Alternatively, press the `[CTRL+S]` on the keyboard.
3. In the **Server Settings** window, open the **Monitored Datastores** tab.
4. Expand the virtual infrastructure hierarchy and clear check boxes next to datastores that must be excluded from the data collection scope.
5. Click **OK** to apply changes.



Configuring Notification Settings

When you open Veeam ONE Client for the first time, you will be prompted to configure notification settings in the **Notification Settings** wizard.

> **TIP:**
>
> If you want to configure notification settings later, click **Cancel**.
>
> To access the wizard later, in the main menu, select **Notifications**. Alternatively, you can configure notifications by changing server settings. For details, see section Veeam ONE Server Settings of the Veeam ONE Monitoring Guide.

To configure notification settings, take the following steps.

Step 1. Configure SMTP Server Settings

At the **Mail Server Settings** tab, configure SMTP server settings or integration with Google Gmail or Microsoft 365. Veeam ONE will use provided settings for notifications generated by both Veeam ONE Monitoring Service and Veeam ONE Reporting Service.

Configuring SMTP Server Settings

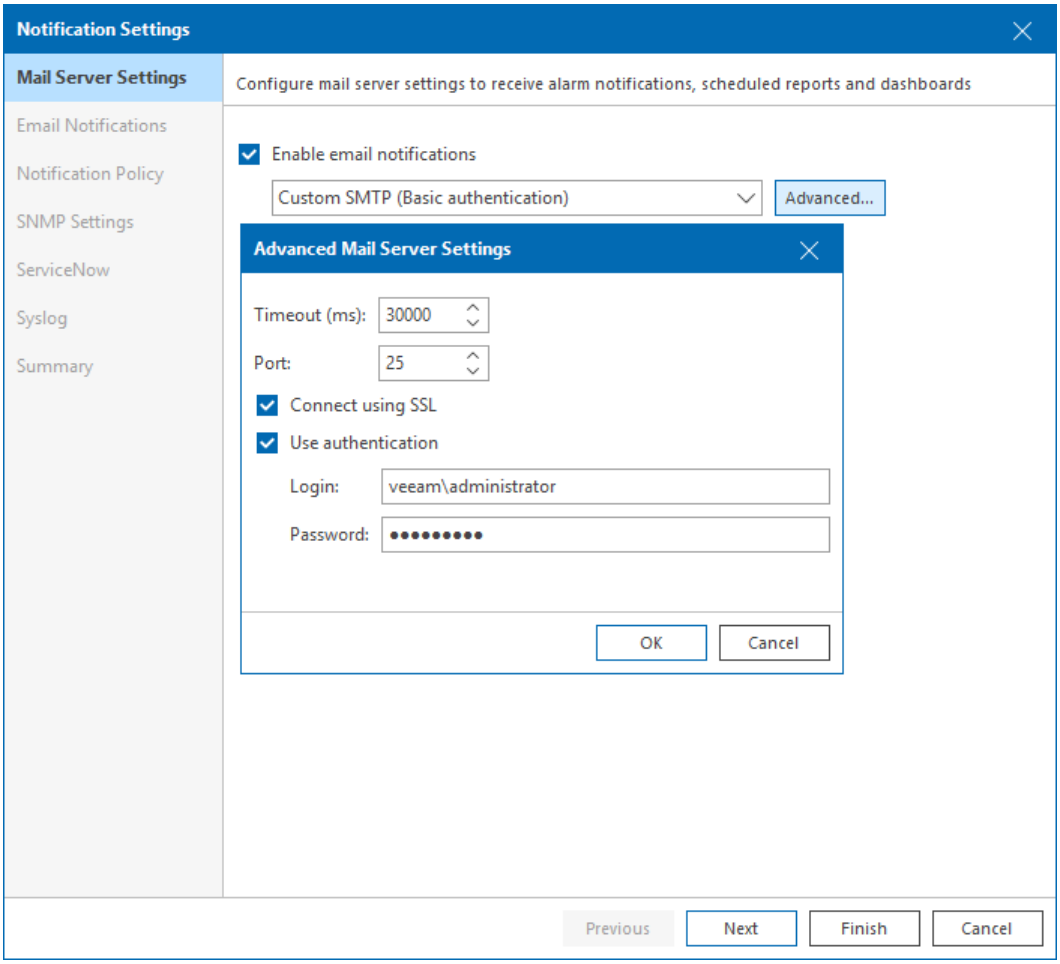
To configure SMTP server settings:

1. Select the **Enable email notifications** check box.
2. From the drop-down list, select **Custom SMTP (Basic authentication)**.
3. In the **SMTP server** field, enter DNS name or IP address of the SMTP server that will be used to send email notifications. All Veeam ONE email notifications (including test messages), automatically generated reports and dashboards will be sent by this SMTP server.

   The default SMTP port is 25.
4. In the **From** field, enter the email address of the notification sender.

   This email address will be displayed in the **From** field of notifications.
5. To configure additional settings, click **Advanced**:
   a. In the **Timeout** field, specify server connection timeout in milliseconds.
   b. In the **Port** field, change the default SMTP communication port if required.
   c. For SMTP server with SSL support, select **Connect using SSL** to enable SSL data encryption.
   d. If your SMTP server requires authentication, select the **Use authentication** check box and specify authentication credentials in the **Login** and **Password** fields.

e. Click **OK**.



Configuring Mail Service Integration

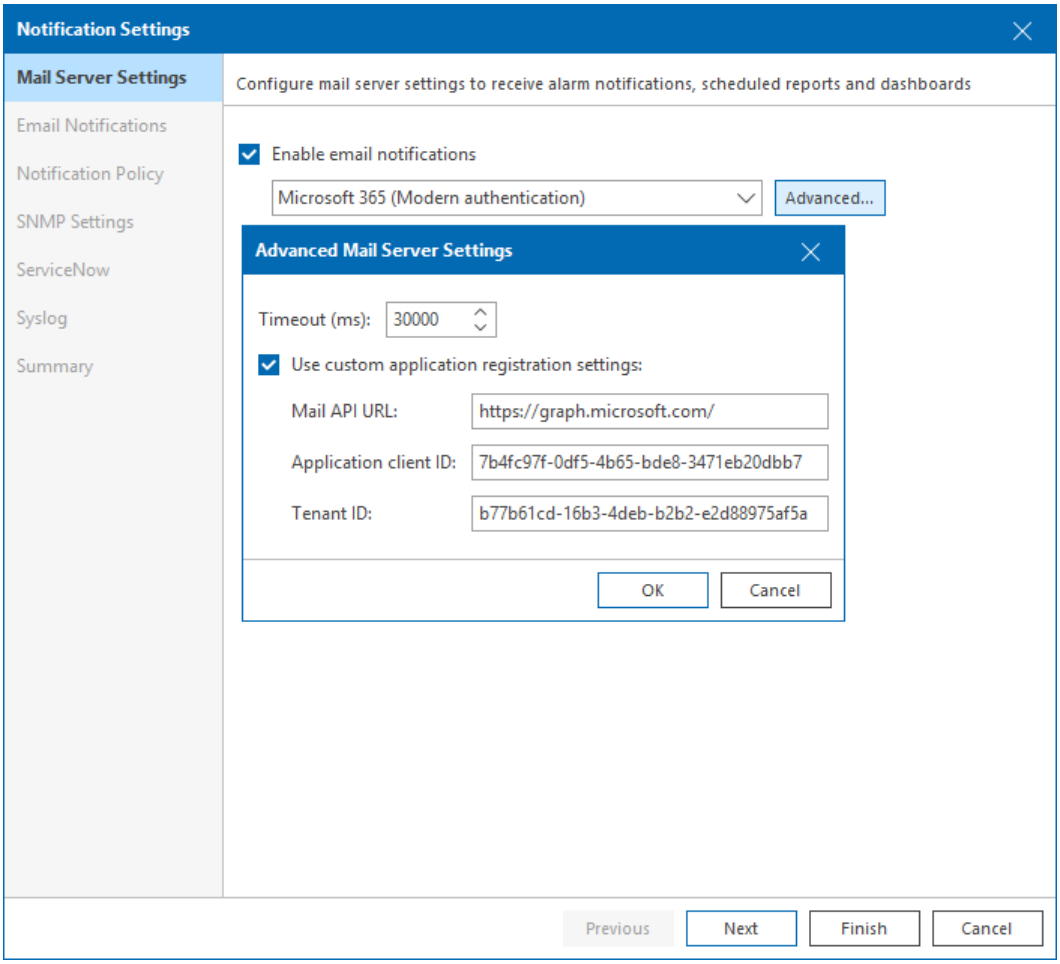
To configure mail service integration:

1. Select the **Enable email notifications** check box.
2. From the drop-down list, select **Microsoft 365** or **Google Gmail**.
3. Click Authorize now.

   You will be redirected to your mail service provider page. After you complete the authentication, you will be redirected to Veeam ONE web portal and the mail server settings will be saved automatically.
4. In the **From** field, enter the email address of the notification sender.

   This email address will be displayed in the **From** field of notifications.
5. To configure additional settings, click **Advanced**:
6. In the **Timeout** field, specify server connection timeout in milliseconds.
   a. Select the **Use custom application registration settings** check box and specify Veeam ONE identification parameters in the mail service:
      - [For Microsoft 365] Specify **Mail API URL, Application client ID** and **Tenant ID**.
      - [For Google Gmail] Specify **Application client ID** and **Client secret**.

b. Click **OK**.

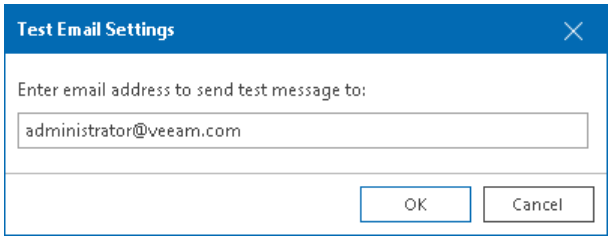


Testing Mail Server Settings

You can send out a test email to make sure that mail server settings are configured correctly:

1. Click **Send Test Email**.
2. Enter an email address at which a test notification should be sent.
3. Click **OK**.

   A test email will be sent to the specified email address.



For details on alarm notification settings, see section Configuring Alarm Notifications of the Veeam ONE Monitoring Guide.

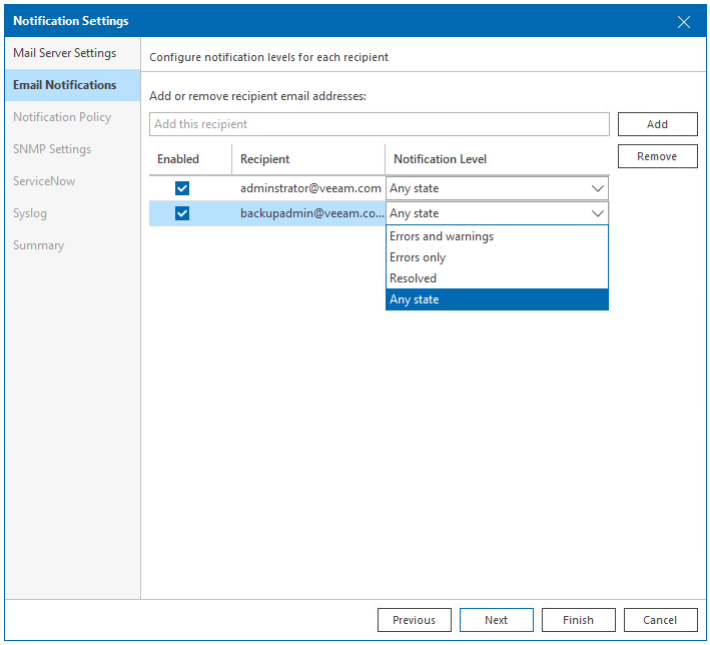
Step 2. Configure Email Notification Settings

At the **Email Notifications** step of the wizard, create a list of recipients to include in the default notification group. For every recipient in the group, specify notification conditions.

The default notification group allows you to simplify the process of configuring alarm notification settings. Instead of specifying notification recipients for every alarm, you can create a group of recipients (for example, monitoring operators and administrators) and notify the whole group when an alarm is triggered or when an alarm changes its status.

To add a recipient to the default notification group:

1. In the **Add or remove recipient email addresses** field, enter an email address of a recipient and click **Add**.
2. From the **Notification Level** list, choose the severity of notifications that the recipient will receive:
   - **Any state** – an email notification will be sent every time when an alarm status changes to *Error*, *Warning* or *Info*.
   - **Errors and warnings** – an email notification will be sent every time when an alarm status changes to *Error* or *Warning*.
   - **Errors only** – an email notification will be sent every time when an alarm status changes to *Error*.
   - **Resolved** – an email notification will be sent every time when an alarm status changes to *Resolved*.



To remove a recipient from the list, select an email address in the list and click **Remove**.

To temporarily disable notifications for specific recipients, clear check boxes next to necessary email addresses in the list.

> **IMPORTANT!**
>
> By default, all predefined alarms are configured to notify members of the default notification group in accordance with the specified notification level. After you add recipients to the default notification group, you might need to change alarm settings or adjust the default email notification frequency. For details on alarm settings, see section Specify Alarm Notification Options of the Veeam ONE Monitoring Guide.

Step 3. Configure Email Frequency

At the **Notification Policy** step of the wizard, specify how often Veeam ONE must send email notifications about alarms.

The frequency at which email notifications are sent is defined with the help of notification policies. Veeam ONE offers two notification policies:

- **Mission Critical** – if this notification policy is used, Veeam ONE creates a new email notification for every alarm. You get an instant email notification once a new alarm is triggered, or once alarm status is changed.
- **Other** – if this notification policy is used, Veeam ONE sends out an email notification about alarms once in a specific time interval (by default, once in 30 minutes). You do not receive a separate email notification for every alarm. Instead, every 30 minutes you receive one email notification about all alarms that were triggered or that changed their status since the latest notification.

By default, the **Mission Critical** policy is applied to all objects in your virtual infrastructure, VMware Cloud Director infrastructure and all objects in your backup infrastructure. If necessary, you can apply different notification policy settings to infrastructure objects or Business View groups:

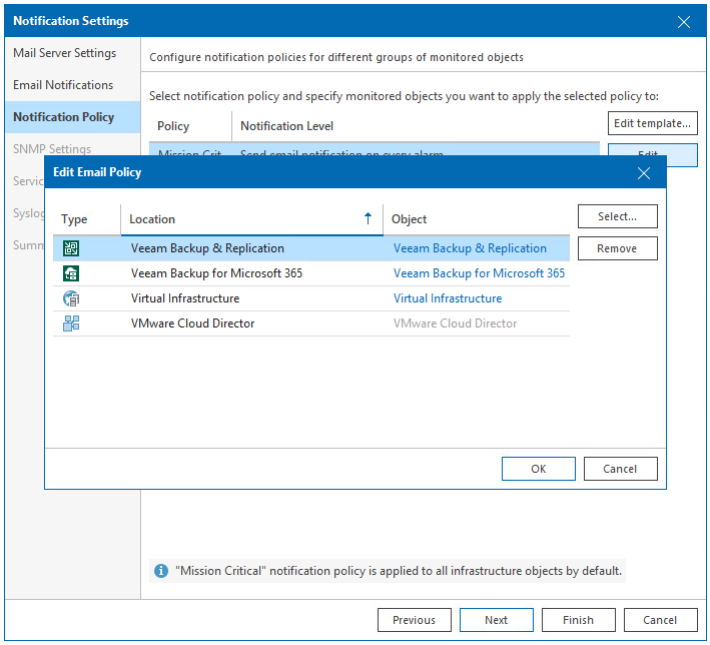
1. Remove effective notification policy settings for chosen infrastructure objects.
2. Apply new notification policy settings to chosen infrastructure objects or Business View groups.

For example, if you want to receive email notifications about problems in the backup environment once within 30 minutes, you must first remove the **Mission Critical** policy settings for backup infrastructure objects, and then apply the **Other** policy settings to backup infrastructure objects.

Removing Effective Notification Policy Settings

Before applying new notification policy settings, you must remove the effective settings for the chosen type of infrastructure objects:

1. Select the necessary policy in the list and click **Edit**.
2. In the **Edit Email Policy** window, select the necessary type of infrastructure objects and click **Remove**.

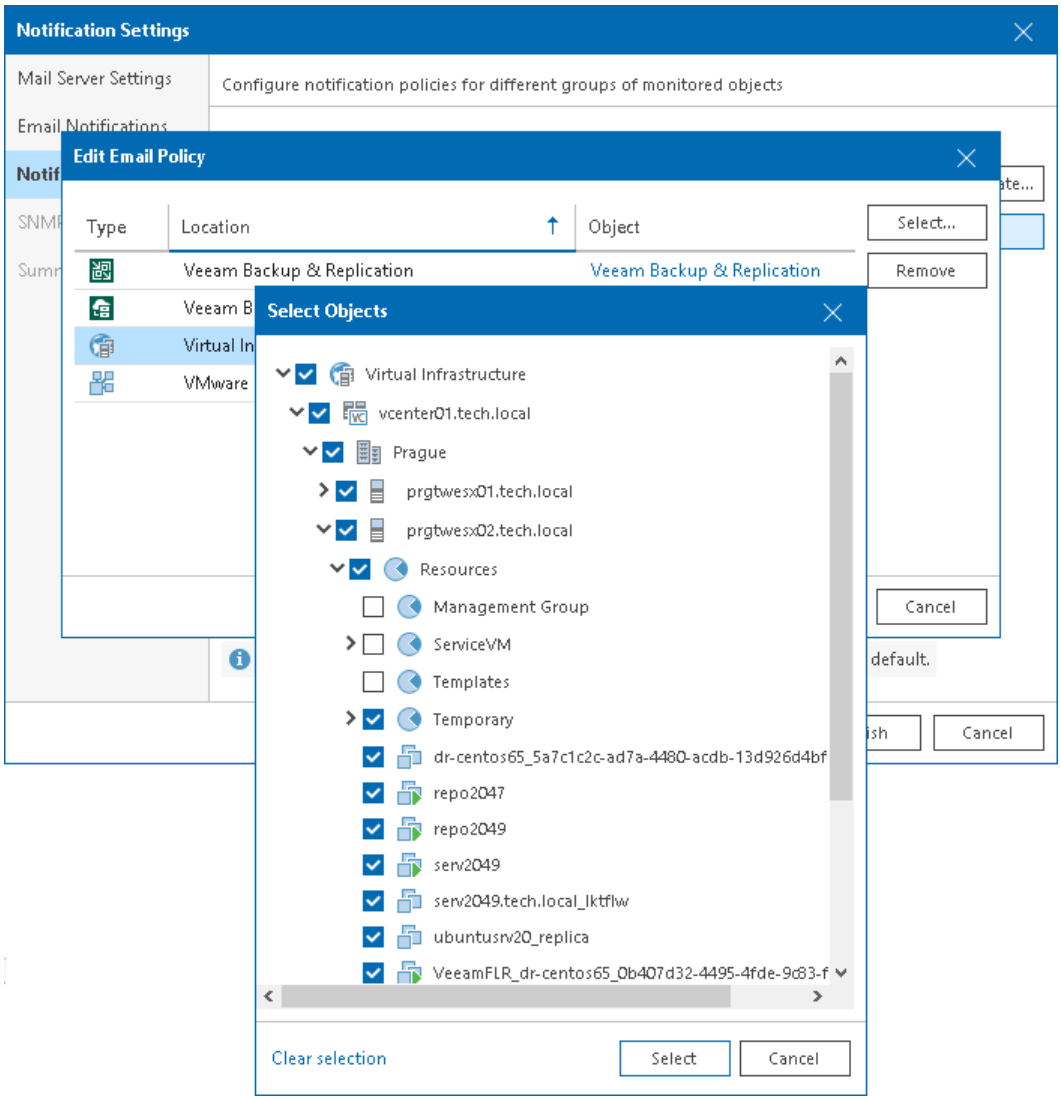


Applying Notification Policy Settings

To apply new notification policy settings to infrastructure objects or Business View groups:

1. Select the necessary policy in the list and click **Edit**.
2. In the **Edit Email Policy** window, click **Select** and choose one of the following options:
   - **Virtual Infrastructure** — browse the virtual infrastructure hierarchy and select check boxes next to objects or infrastructure segments to which the policy settings must apply.
   - **Business View** — browse the Business View hierarchy and select check boxes next to groups or infrastructure objects to which the policy settings must apply.
   - **VMware Cloud Director** — browse the VMware Cloud Director infrastructure and select check boxes next to infrastructure components to which the policy settings must apply.
   - **Veeam Backup & Replication** — browse the backup infrastructure and select check boxes next to infrastructure components to which the policy settings must apply.
   - **Veeam Backup for Microsoft 365** — browse the Veeam Backup for Microsoft 365 infrastructure and select check boxes next to infrastructure components to which the policy settings must apply.
3. Click **Select**.
4. [Only for the **Other** policy] In the **Time interval to send summary email (minutes)** field, specify how often Veeam ONE must send a summary email informing about triggered alarms.

5. Click **OK**.



TIP:

You can also change the notification policy settings by adjusting server settings. For details, see section Veeam ONE Server Settings of the Veeam ONE Monitoring Guide.

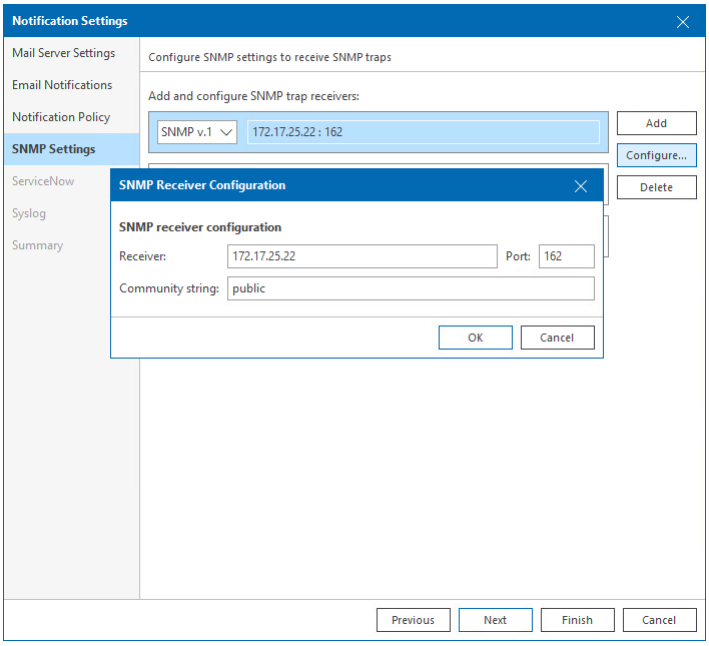
Step 4. Configure SNMP Settings

At the **SNMP Settings** step of the wizard, specify trap notification settings that can be used for sending notifications about alarms.

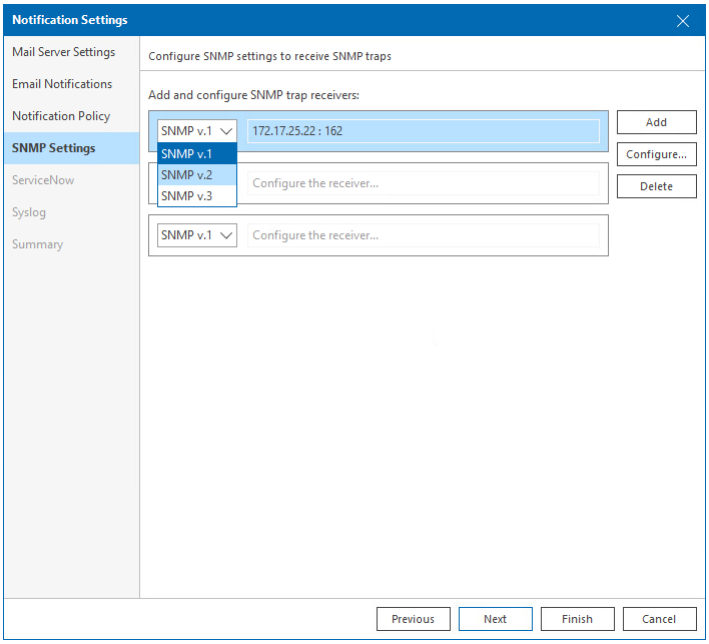
To specify SNMP receiver configuration settings:

1. Click **Add**.
2. Click **Configure** to open the **SNMP Receiver Configuration** window.
3. In the **Receiver** field, specify DNS name or IP address of the SNMP receiver.
4. In the **Port** field, specify the port number to be used.

   The default SNMP port is 162.
5. In the **Community string** field, enter the community identifier.
6. Click **OK** to apply the specified settings.



7. In the list of SNMP receivers, choose the version of the SNMP protocol to be used.



To add a new receiver to the list, click **Add** and repeat steps 2-7 described above.

Note that after you configure notification settings, you must configure SNMP service properties on the trap recipient computers:

1. Install a standard Microsoft SNMP agent from the Windows distribution.
2. From the Start menu, select **Control Panel** > **Administrative Tools** > **Services**.
3. Double-click **SNMP Service** to open the **SNMP Service Properties** window.
4. Click the **Traps** tab.
5. Add the public string to the **Community name** list and the host name to the **Trap destinations** list.
6. Click the **Security** tab.
7. Make sure the **Send authentication trap** option is selected.
8. Add the public string to the **Accepted community names** list.
9. Select the **Accept SNMP packets from any hosts** option.
10. Click **Apply** and then **OK** to accept changes.

> **NOTE:**
>
> By default, Veeam ONE alarms are not configured to send SNMP traps when the alarm state changes. To enable SNMP traps for an alarm, you should change alarm action settings. For details, see section Enable SNMP Notification for Alarms of the Veeam ONE Monitoring Guide.

Step 5. Configure ServiceNow Integration

The ServiceNow integration provides Veeam ONE with enhanced visibility and faster alerts triggered directly as ServiceNow incidents.

At the **ServiceNow** step of the wizard, specify your ServiceNow settings used for ServiceNow integration.

To specify ServiceNow integration details:

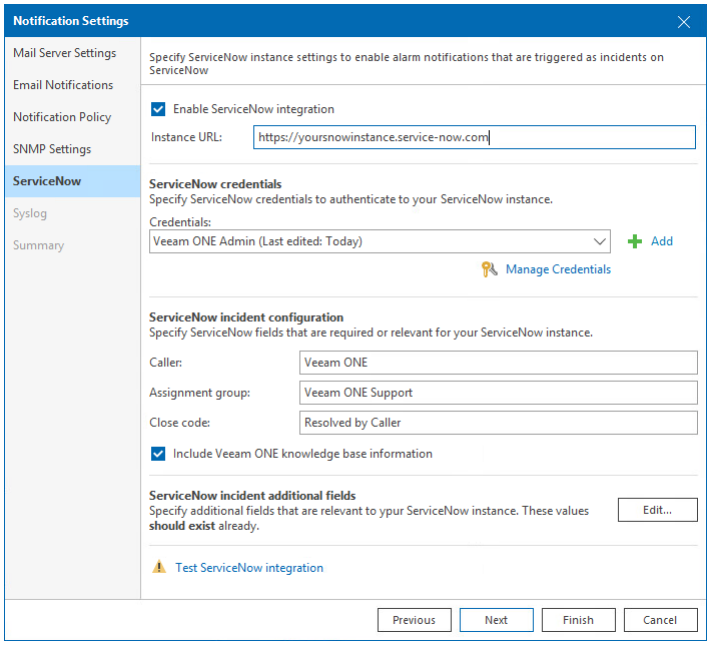
1. Select the **Enable ServiceNow integration check box**.
2. In the **Instance URL** field, specify the **ServiceNow** instance URL, for example `https:\\yourinstancename.service-now.com`.
3. Specify **ServiceNow Credentials** used to authenticate your ServiceNow instance administration.

   For details on permissions required for connection, see Connection to ServiceNow.

   For details on adding credentials records, see section Credentials Manager of the Veeam ONE Monitoring Guide.
4. [Optional] If your organization policy requires additional ServiceNow credentials, click **Add** and enter your additional credentials.
5. In the **ServiceNow Incident Configuration** section, specify the following details:
   - **Caller** – defines the caller name assigned for the purposes to create, update, and resolve incidents. *Veeam ONE* is the default value, alternatively you can define a custom name if it already exists on your ServiceNow instance.
   - **Assignment group** – defines the name for the assignment group for the purposes to create, update, and resolve incidents. *Veeam ONE Support* is the default value, alternatively you can define a custom name if it already exists on your ServiceNow instance.
   - **Close code** – defines the close code for resolved incidents. Use only the close code defined on your ServiceNow instance.
   - [Optional] Select the **Include Veeam ONE Knowledge Base** information check box to mark incidents for knowledge base articles.
6. [Optional] In the **ServiceNow Incident Additional field** section, click **Edit** and add additional **Field** and **Value** parameters to specify additional fields relevant to your individual ServiceNow instance company requirements.
7. To test the connection settings, click **Test ServiceNow Integration**.

   Veeam ONE will establish a connection to ServiceNow, create and resolve a test incident.

If you select the **Enable ServiceNow integration** check box and do not test the connection, Veeam ONE will verify it before saving the notification settings. Additionally, the connection is checked when the node changes.



Step 6. Configure Syslog Integration

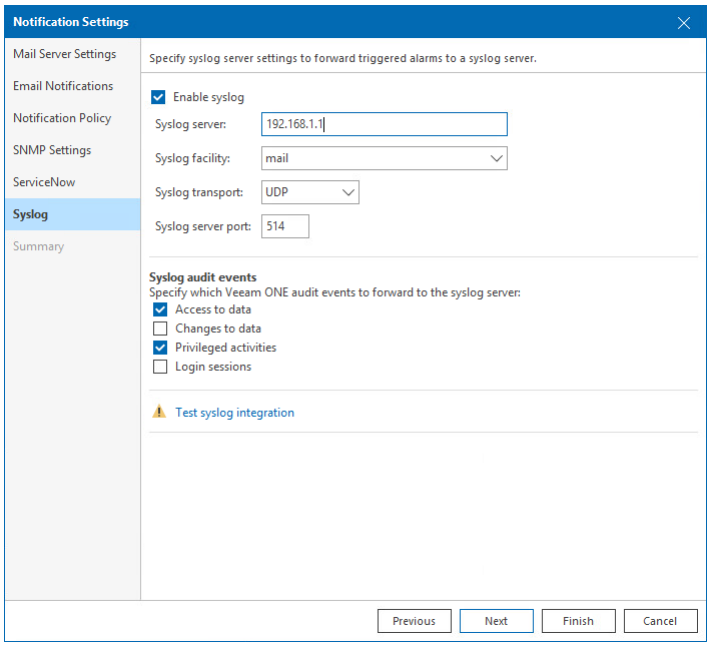
Syslog integration allows you to send pre-built Veeam ONE alarms and data for audit events for reuse within your Syslog server environment.

At the **Syslog** step of the wizard, specify your Syslog settings used to return alarms to your Syslog instance.

To specify your Syslog integration details:

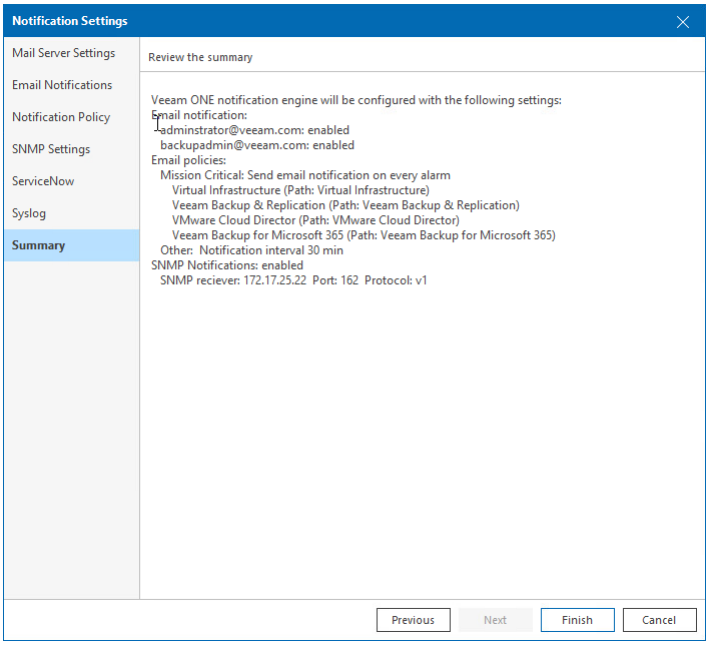
1. Click the **Enable Syslog** check box.
2. Enter **Syslog Server** details::
   - **Syslog Server —** define the IPv4 or IPv6 address of your Syslog instance.
   - **Syslog Facility —** define the value used to identify the source of the alarm. By default this is set to **mail**.
   - **Syslog Transport** — define TCP, TCP with TLS, or UDP. By default this is UDP.
   - **Syslog Port** — the port used to connect to your Syslog integration instance. By default this is 514.
3. Select your required **Syslog Audit events to send to your Syslog integration:**
   - Access to data
   - Changes to data
   - Privileged activities
   - Login sessions
4. To test the connection settings, click **Test Syslog Integration**. This creates a test connection to Syslog and returns a signal confirming a successful connection.

   If the **Enable Syslog** check box is selected and the connection is not tested, the connection is verified before saving the notification settings and additionally, the connection is also checked when the node changes.



Step 7. Review Summary

Review configured notification settings and click **Finish**.



Data Collection Schedule

After you connect VMware vSphere, Microsoft Hyper-V, Veeam Backup & Replication and Veeam Backup for Microsoft 365 servers, Veeam ONE will propagate the provided connection settings to all its components and will set up the following default data collection configuration:

- In Veeam ONE Client, the connected servers will be added to the list of monitored objects. Data from the servers will be collected in the real-time mode.
- In Veeam ONE Web Client, the connected servers will be added to the list of objects targeted for data collection. Data collection will be scheduled to run on weekdays, at 3:00 a.m. The first data collection session will start immediately after installation. You can customize the schedule according to which reporting data is collected in the Veeam ONE Web Client console. For details on changing data collection schedule, see section Scheduling Data Collection of the Veeam ONE Reporting Guide.

Security Groups

Veeam ONE creates the following security groups on the machines where Veeam ONE Server and Veeam ONE Web Services components are installed:

- **Veeam ONE Administrators**: members of this group can access monitoring data, generate reports and modify all Veeam ONE configuration settings.

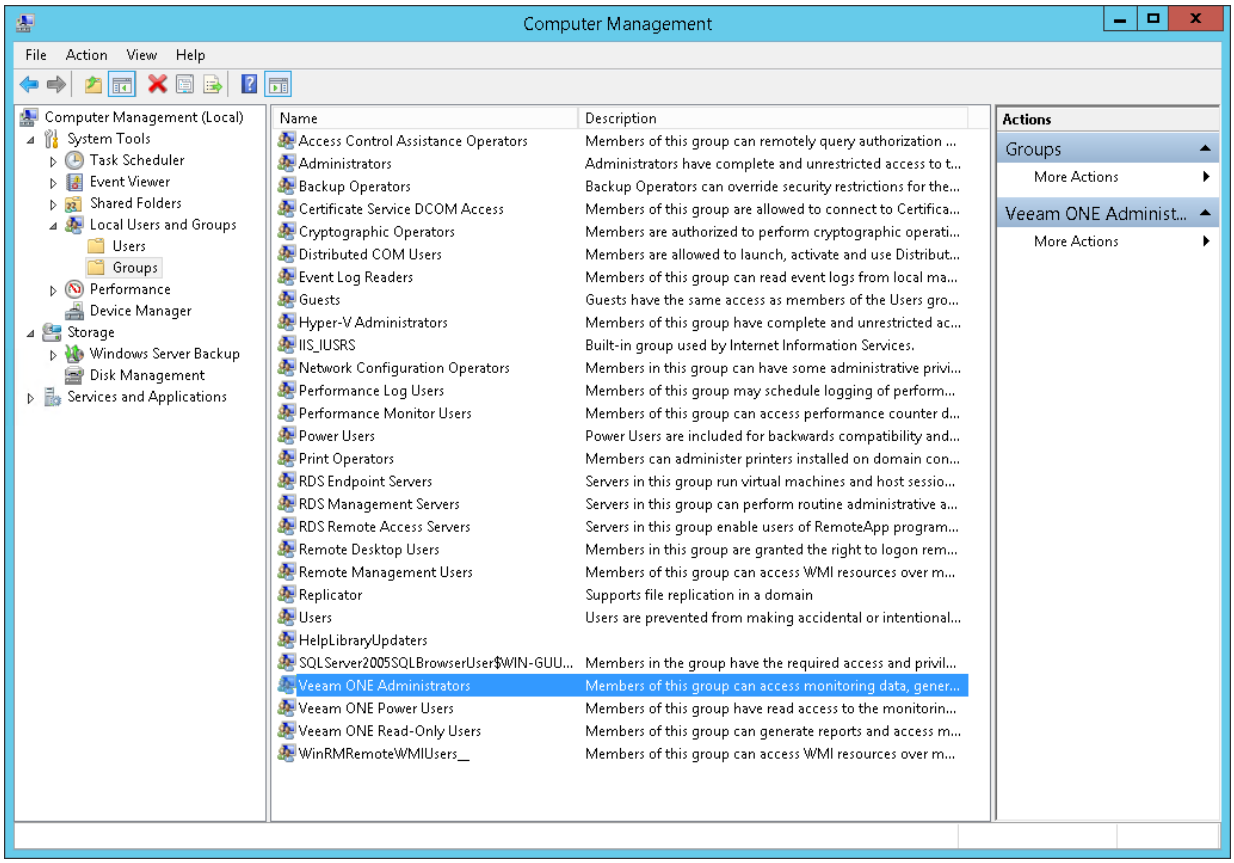
  This group must include the Veeam ONE service account.

- **Veeam ONE Power Users:** members of this group have read access to monitoring data and can generate reports but do not have access to Veeam ONE configuration settings.

  > **NOTE:**
  >
  > Members of the *Power Users* security group can run report and dashboard scheduling scripts on the machine on which the Veeam ONE Web Services component is installed. Include users into this group with caution.

- **Veeam ONE Read-Only Users**: members of this group can generate reports and access monitoring data in read-only mode, but cannot modify any Veeam ONE configuration settings.

You can access and manage security groups in the Computer Management console.



To provide access to Veeam ONE functionality for an administrator or operator, you must include this user either in the *Veeam ONE Administrators*, *Veeam ONE Read-Only Users* or *Veeam ONE Power Users* group. Member of these groups have access to:

- All Veeam ONE consoles (Client and Web Client)
- All objects of the infrastructure inventory

NOTE:

To apply the changes after a user has been included to a Security Group, this user must log out and log back on to the machines where Veeam ONE Server and Veeam ONE Web Services components are installed.

Multi-Tenant Monitoring and Reporting

Veeam ONE supports multi-user access to its monitoring and reporting capabilities. Authorized users can concurrently access the same instance of Veeam ONE to monitor the health state of the virtual infrastructure and create reports.

To restrict access to sensitive infrastructure data, you can limit the scope of virtual infrastructure objects and associated data that must be available to a Veeam ONE user. Thus you can control what subset of the managed virtual infrastructure the user can see and work with. In multi-tenant environments, you can configure restricted access to Veeam ONE for owners of virtualized systems or responsible personnel and delegate monitoring and reporting tasks.

NOTE:

Do not use security groups to enable for users possibilities of self-service monitoring and reporting on a restricted scope of the virtual infrastructure. Instead, configure permissions for multi-tenant access. For details, see Veeam ONE Multi-Tenant Monitoring and Reporting.

Data Retention

Data collected from virtual and backup servers is organized to the Veeam ONE database. Veeam ONE retains data in the database as follows:

- For categorization data, Veeam ONE retains one sample in the database. This data is updated with every new data collection.
- For topology, configuration, audit and performance data, Veeam ONE keeps multiple samples based on the retention policy. Performance data is aggregated in the database according to the scheme described below.
- For events collected from backup and virtual servers, Veeam ONE keeps all collected instances.

Performance Data Aggregation

As the performance data ages, Veeam ONE aggregates it for long-term storage. Data aggregation helps save disk space on the database server and speed up generation of performance reports and charts.

Veeam ONE uses the following aggregation scheme for performance data:

Period	Optimized for Veeam backup data and virtual infrastructure performance monitoring	Optimized for Veeam backup data and large-scale virtual infrastructure performance monitoring	Veeam Backup Data Only
Hour	20 seconds for VMware vSphere 30 seconds for Microsoft Hyper-V	15 minutes	20 seconds
Week	5 minutes	30 minutes	5 minutes
Year	2 hours	2 hours	2 hours

Sampling intervals at which data is stored to the database depend on Veeam ONE data collection mode. For example, for the Veeam backup data only mode, raw data (data with 20-second resolution) is stored for 1 hour. After 1 hour, raw data is aggregated to 5-minute resolution data. After 1 week, data with 5-minute resolution is aggregated to 2-hour resolution data. Data with this level of detail is stored in the database for up to 1 year.

To draw performance charts, Veeam ONE uses data with various aggregation levels, depending on the period for which performance data is shown. For example, for Veeam backup data only mode, performance charts for the past hour use samples with 20-second resolution, charts for the past day use data with 5-minute resolution and so on.

To generate performance reports, Veeam ONE uses data with 2-hour resolution.

If you use Veeam ONE for monitoring and reporting in large environments, the Veeam ONE database can grow quickly. To support large virtual and backup infrastructures and reduce the size of the Veeam ONE database, you can increase aggregation intervals for performance data. To learn how to change aggregation intervals, contact Veeam Support at https://www.veeam.com/support.html.

Changing Veeam ONE Service Account

You can change Veeam ONE service account or the service account password that you provided during the product installation. For example, changing Veeam ONE service account properties can be required if you use a domain account as the Veeam ONE service account. When you update the domain account password, you must manually update the service account password for Veeam ONE.

To change the Veeam ONE service account or service account password:

1. Log on as Administrator to the machine where the Veeam ONE Server component is installed.
2. Change accounts of *Veeam ONE Monitoring Service*, *Veeam ONE Reporting Service*, *Veeam ONE Agent* and *Veeam ONE Error Reporting Service*:
   a. Click **Start**, go to **Programs > Administrative Tools**, and then click **Services**.
   b. Right-click *Veeam ONE Monitoring Service* and choose **Stop**.
   c. Right-click *Veeam ONE Monitoring Service*, choose **Properties** and open the **Log on** tab.
   d. In the **This account** filed, specify the user name of the service account.
   e. In the **Password** and **Confirm password** fields, type a password of the service account.
   f. Click **OK**.
   g. Repeat steps a-f for *Veeam ONE Reporting Service*, *Veeam ONE Agent* and *Veeam ONE Error Reporting Service*.
1. Start *Veeam ONE Monitoring Service, Veeam ONE Reporting Service, Veeam ONE Agent* and *Veeam ONE Error Reporting Service*:
   a. Click **Start**, go to **Programs > Administrative Tools**, and then click **Services**.
   b. Right-click the necessary service and choose **Start**.

IMPORTANT!

If you want to use *Local System* as the service account, consider the following:

- SQL Server Authentication is required for the account used to connect to the Microsoft SQL Server hosting the Veeam ONE database.

  For details on modifying database connection settings, see section Database of the Veeam ONE Monitoring Guide.
- You cannot install the license using the POST `/v1/license/install` method of the Veeam ONE REST API.

Other Ways to Change Service Account

To change Veeam ONE service account, you can also perform the following steps:

1. Uninstall Veeam ONE.
2. Re-install Veeam ONE and specify a new service account during installation.

   Note that when you re-install Veeam ONE, you must point it to the existing Veeam ONE database.

Upgrading to Veeam ONE 12

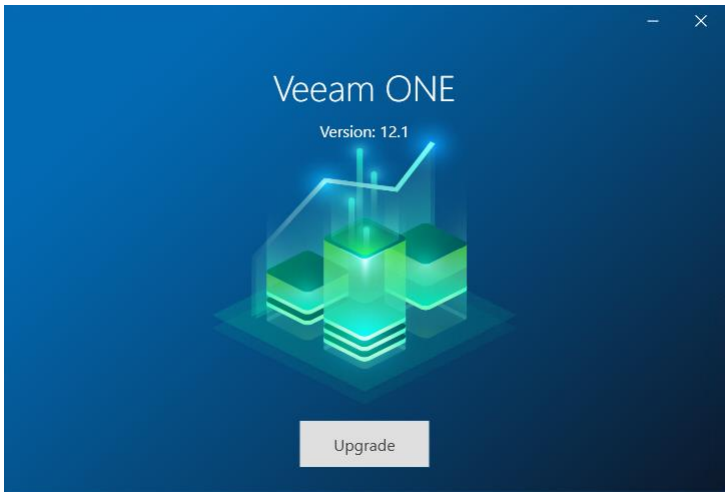
Upgrade to version 12 is supported starting from Veeam ONE version 10a (build #10.0.2.1094).

To upgrade to Veeam ONE 12, follow these steps.

Step 1. Launch Splash Window

After you mount or insert the disk with Veeam ONE installation image, Autorun will open a splash screen with installation options. On the splash window click **Upgrade**.

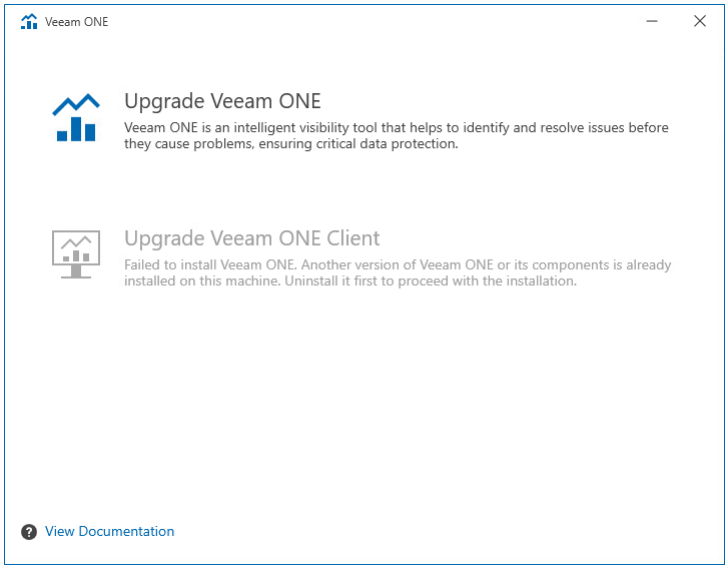
If Autorun is not available or disabled, run the `Setup.exe` file from the installation image or disk.



Step 2. Select Component

At the **Upgrade Veeam ONE Component** step of the wizard, select **Upgrade Veeam ONE**.

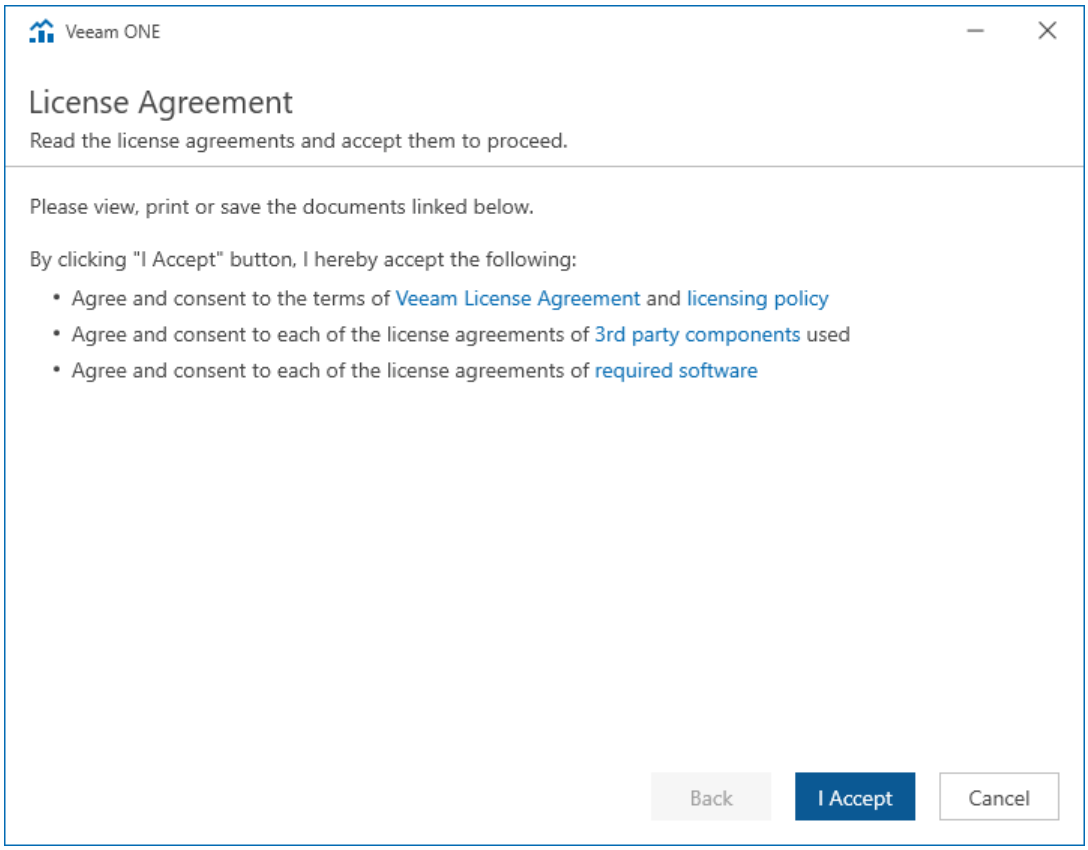
To open Veeam Help Center from the setup wizard, click **View Documentation**.



Step 3. Accept License Agreements

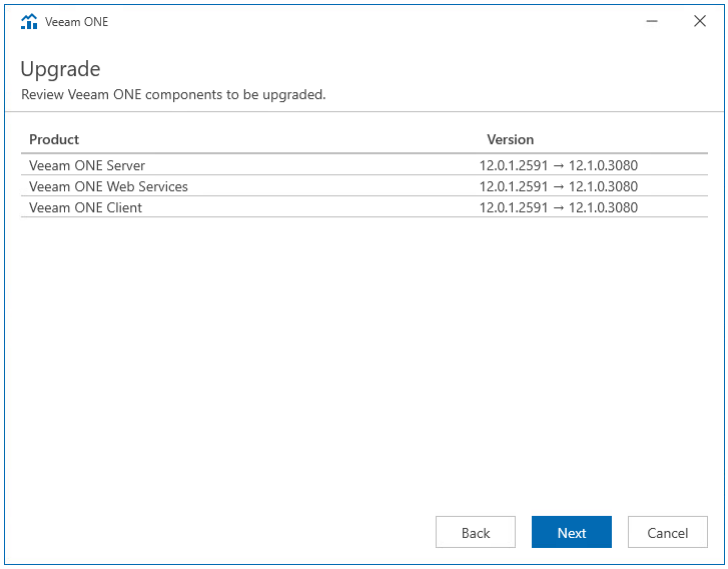
At the **License Agreements** step of the wizard, read and accept Veeam license agreement, licensing policy, 3rd party components and required software license agreements. You will not be able to continue upgrade until you accept license agreements.

To read the terms of the license agreements, click the individual links.



Step 4. Review Components to Upgrade

Veeam ONE Setup wizard will automatically detect components of the previous version installed on the machine. At the **Upgrade** step of the wizard, review the components to upgrade.

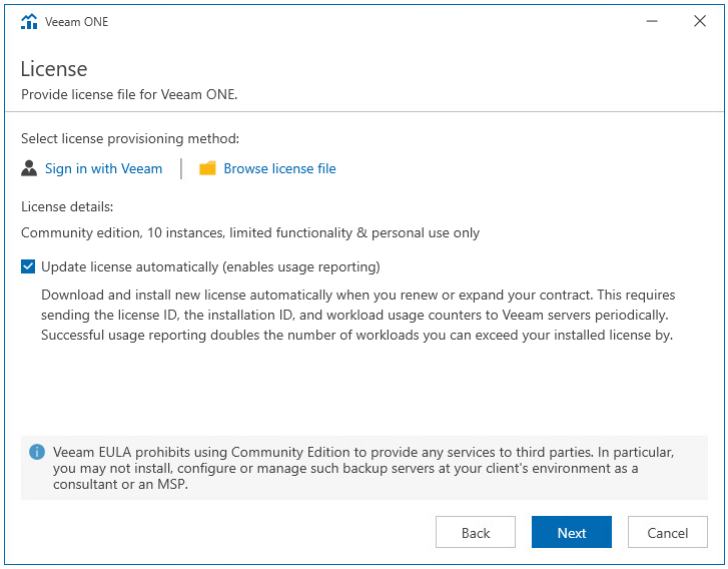


Step 5. Provide License

At the **License** step of the wizard, click one of the two options to provide a license:

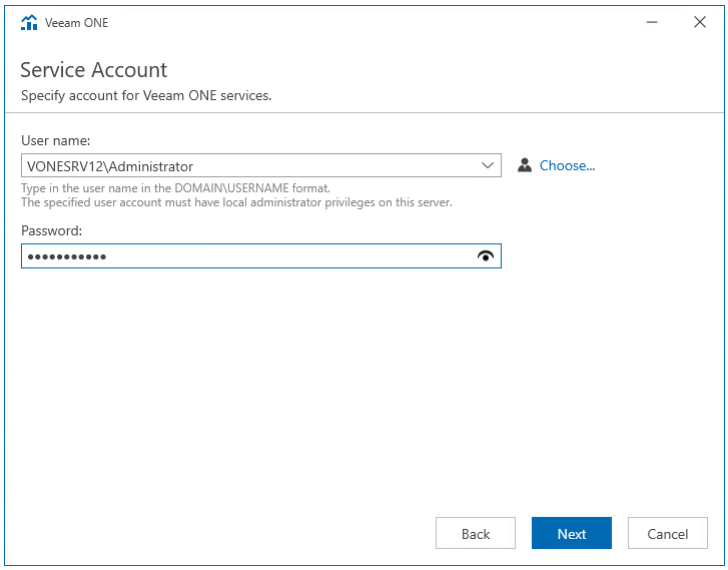
- **Sign-in with Veeam** – open the Veeam account Sign in screen to log in with your Veeam account credentials if you already have a registered license on your account.
- **Browse licence file locally** – specify the local path to the license file.

To install new licenses automatically when you renew or expand your contract, select the **Update license automatically** check box. If you enable the automatic license update, and therefore enable usage reporting, you will double the number of workloads by which you can exceed your installed license. Note that for *Evaluation* and *NFR* licenses automatic license update must be enabled.



Step 6. Specify Service Account Credentials

At the **Service Account** step of the wizard, specify the password of the account under which Veeam ONE Service runs.

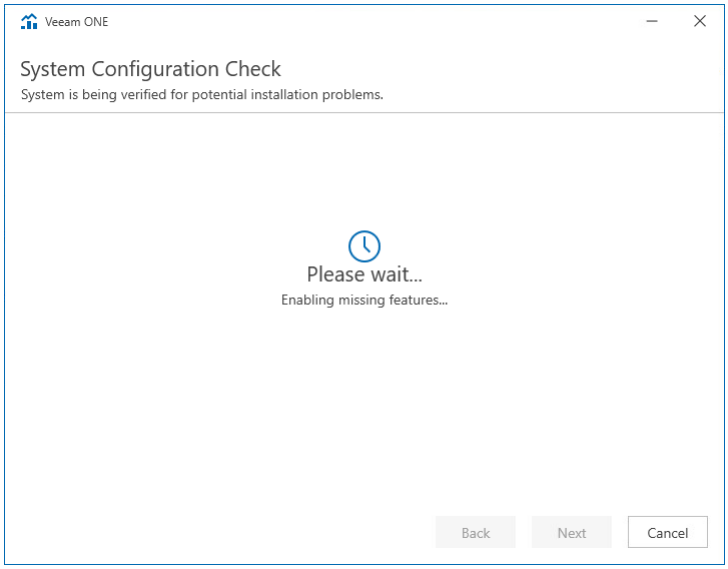


Step 7. Perform System Configuration Check

At the **System Configuration Check** step of the wizard, check what prerequisite software is missing.

Before proceeding with the upgrade, the installer will perform system configuration check to determine if all prerequisite software is available on the machine. To learn what software is required for Veeam ONE, see System Requirements.

If some of the required software components are missing, the setup wizard will enable the missing software components and features automatically.



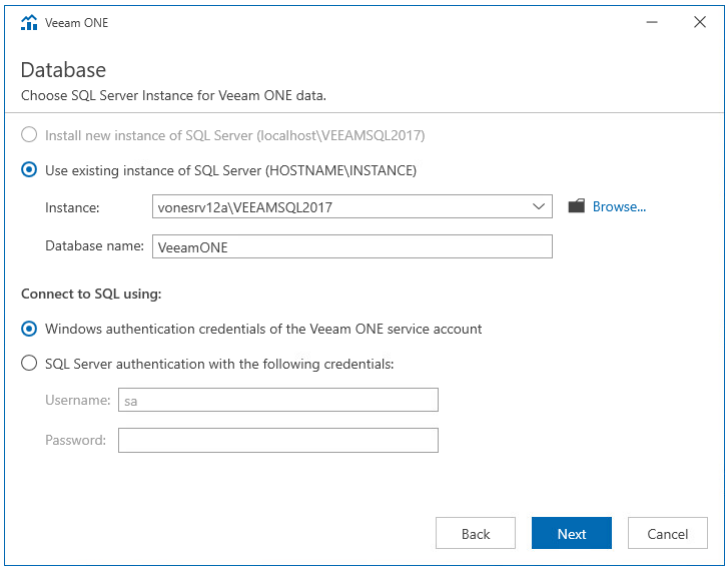
Step 8. Choose Microsoft SQL Server

At the **SQL Server Instance** step of the wizard, specify a Microsoft SQL Server instance that hosts the Veeam ONE database.

The Microsoft SQL Server and database name must be populated automatically. If required, you can change the database connection settings:

1. Select the **Use existing instance of SQL Server** option and choose the Microsoft SQL Server instance that hosts the Veeam ONE database.
2. In the **Database name** field, specify the name of the Veeam ONE database.
3. Provide credentials for the account that Veeam ONE components must use to access the database.

   You can enter credentials explicitly or use Windows authentication credentials of the Veeam ONE service account to connect to the Microsoft SQL Server. For details on required permissions for the account, see Connection to Microsoft SQL Server.

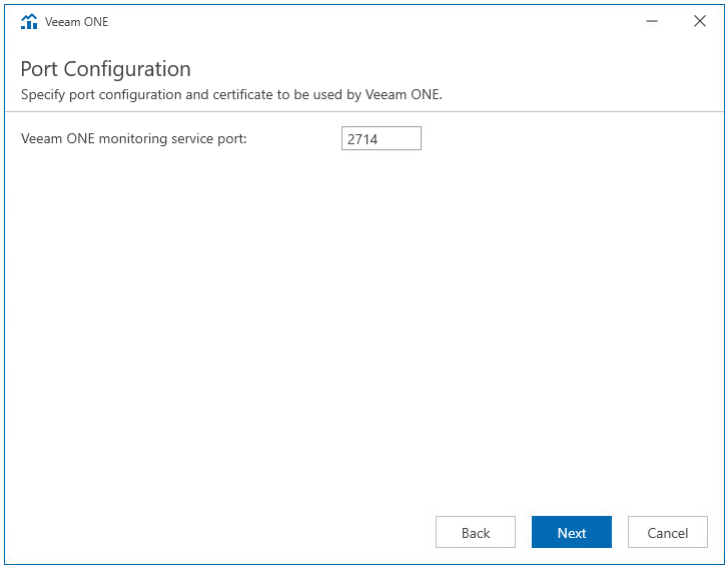


Step 9. Specify Connection Ports

At the **Port Configuration** step of the wizard, specify connection settings for Veeam ONE Monitoring Service.

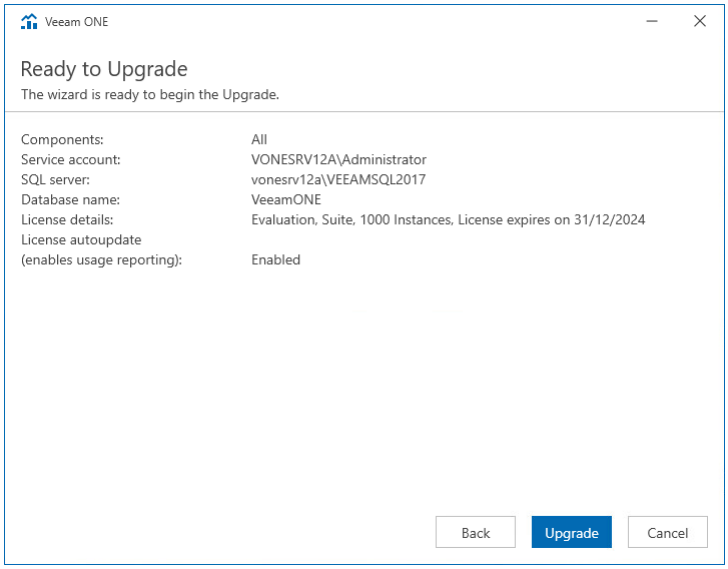
In the **Veeam ONE monitoring service port** field, type a number of the port that will be used to interact with Veeam ONE Monitoring service.

The default port number is `2714`.



Step 10. Begin Upgrade

At the **Ready to Upgrade** step of the wizard, click **Upgrade** to begin the upgrade process.



If you installed Veeam ONE using the custom installation, repeat this upgrade procedure on every machine where the Veeam ONE components are installed.

Depending on the size of the Veeam ONE database, the upgrade procedure may take up to several hours.

Step 11. Change Default Certificate

Veeam ONE uses TLS to ensure secure data communication between Veeam ONE Web Client and a web browser. That is, the Veeam ONE Web Client is available over HTTPS.

During upgrade, Veeam ONE generates a self-signed certificate that is used to secure traffic. You can replace this default certificate with your own self-signed certificate or a certificate that was obtained from a Certificate Authority. This step is optional, and is not required if you want to keep the default certificate generated during the upgrade procedure.

For details on Veeam ONE certificates, see Appendix C. Veeam ONE Certificates.

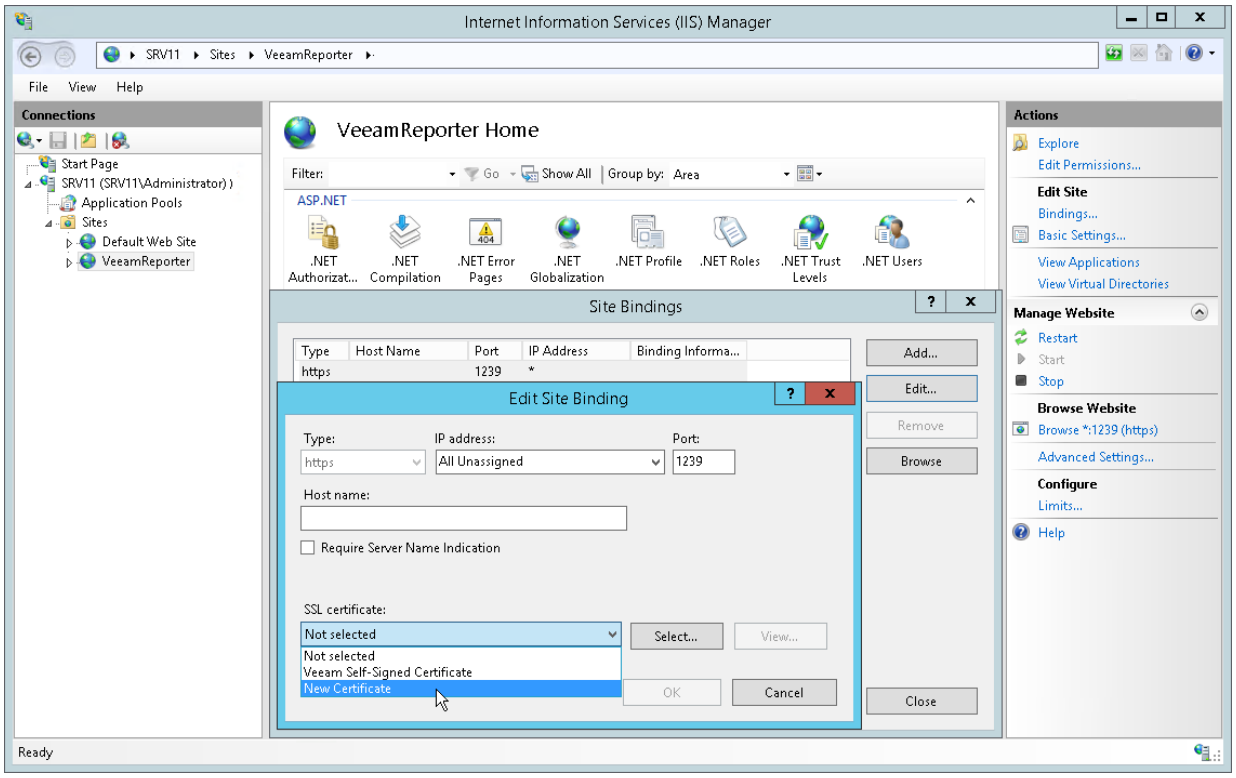
> **NOTE:**
>
> If you replace the default certificate with another self-signed certificate, you must configure a trusted connection between the Veeam ONE Web Client and a web browser later. For details, see Configuring Trusted Connection.

Assigning Certificate to the Veeam ONE Web Client Website

To assign a new certificate to the Veeam ONE Web Client:

1. Log on to the machine where the Veeam ONE Web Service component is installed.
2. Open the Internet Information Services (IIS) Manager, expand the *localhost* node and navigate to **Sites**.
3. In the **Connections** pane, select *VeeamReporter*.
4. In the **Actions** > **Edit Site** pane on the right, click **Bindings**.
5. In the **Site Bindings** window, select the existing binding and click **Edit**.
6. From the **SSL certificate** list, select the necessary certificate and click **OK**.

7. In the **Site Bindings** window, click **Close**.



Step 12. Specify Guest OS Credentials for Microsoft Hyper-V VMs

After you upgrade to Veeam ONE 12, you must specify credentials of an account that will be used to collect data from Windows guest OSes on Microsoft Hyper-V VMs. If you do not specify guest OS credentials, Veeam ONE will not display guest OS data (in particular, data about guest disks) in monitoring dashboards, alarms and reports.

For details, see Step 6. Specify VM Guest OS Credentials.

Step 13. Apply Available Updates

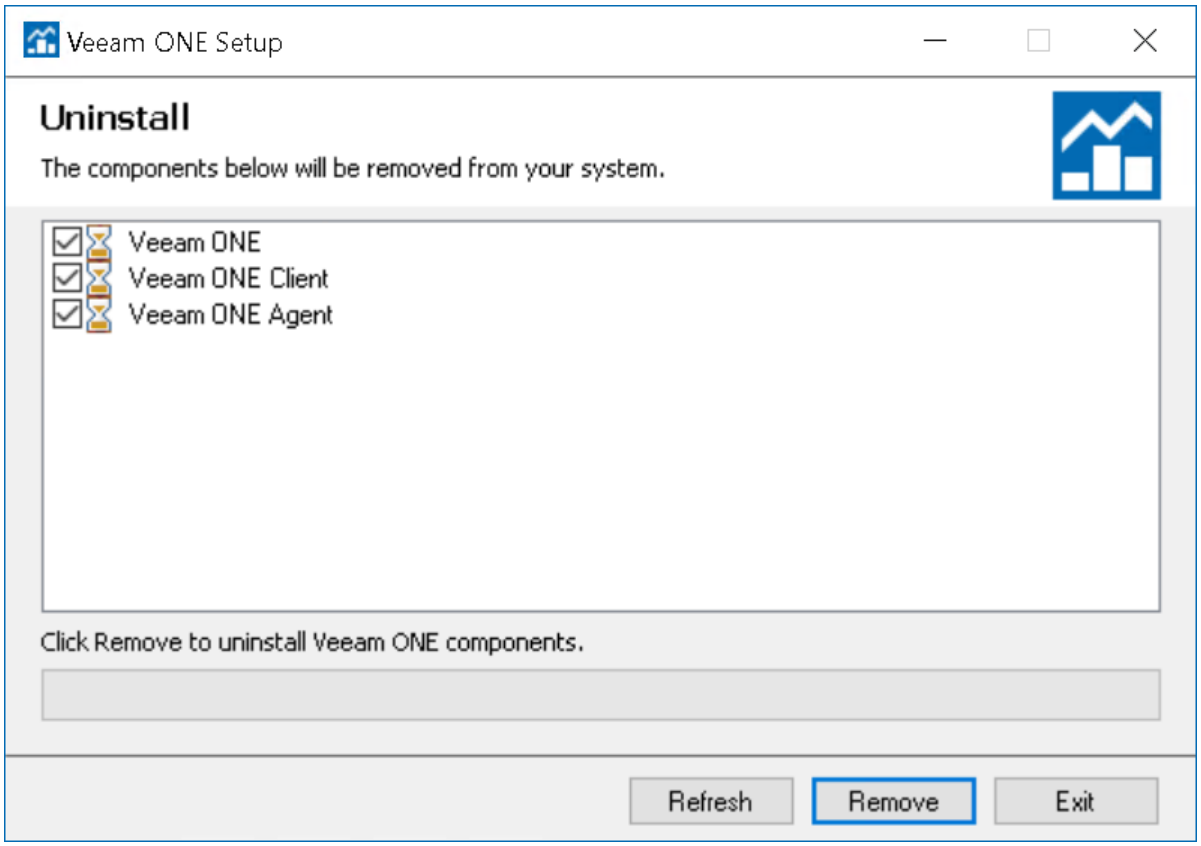
We recommend that you periodically check for Veeam ONE updates and install them as available. You can download product updates at https://www.veeam.com/updates.html.

Upgrading Veeam ONE Client

If you have additionally installed several standalone instances of Veeam ONE Client, you must upgrade them as well. The upgrade procedure is identical to Veeam ONE Client installation. For details, see Installing Veeam ONE Client.

Uninstalling Veeam ONE

To uninstall Veeam ONE, open the **Start** menu, go to **Control Panel** > **Uninstall a program**, choose Veeam ONE components you want to uninstall and click **Remove**.



If you installed Veeam ONE using the custom installation, repeat this procedure on every machine where the Veeam ONE components are installed.

The SQL Server instance installed and used by Veeam ONE is not removed during the uninstall of Veeam ONE. It needs to be removed separately using the standard **Add or Remove Programs** feature in **Control Panel**. Veeam ONE database and its data is retained until you manually remove the database or uninstall the SQL Server instance.

Exporting Logs

To troubleshoot issues with Veeam ONE, you might need to export diagnostic logs for Veeam ONE Monitoring and Reporting services

Diagnostic logs include information that can be used by the Veeam Support Team to troubleshoot issues occurring with Veeam ONE. In addition, diagnostic logs include information about managed virtual and backup infrastructures. This type of information is used to speed up the root cause analysis when troubleshooting issues.

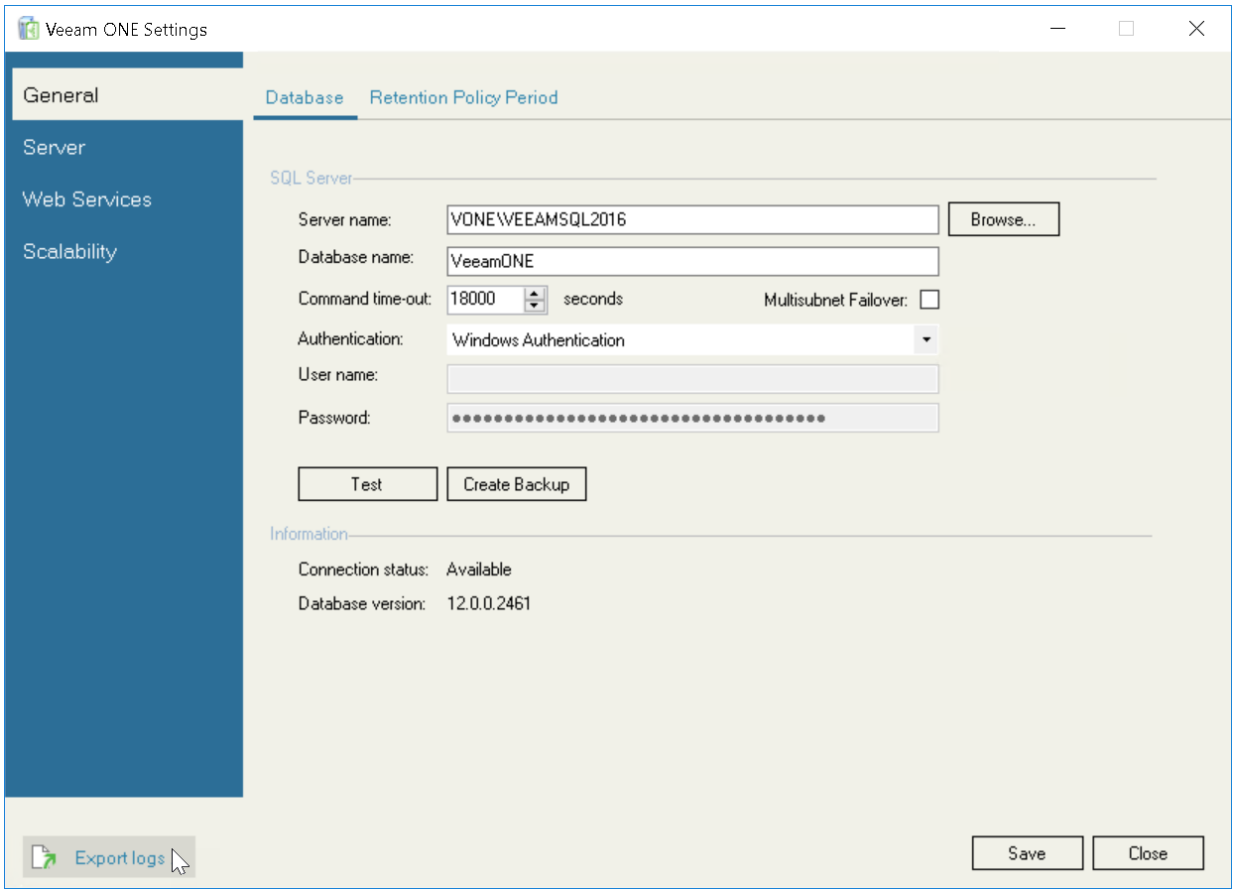
To export diagnostic logs:

1. Open Veeam ONE Client.
2. In the main menu, click **Settings** and select **Server Settings**.

   Alternatively, you can press `[CTRL + S]` on the keyboard.
3. Open the **Other** tab.
4. In the **Support utility** section, click **Launch**.

   Veeam ONE will launch the Veeam ONE Settings utility.
5. At the bottom left corner of the Veeam ONE Settings utility, click **Export logs**.
6. Specify a location to which the exported logs must be saved.

The Veeam ONE Settings utility will export logs and save them to a `ZIP` archive in the specified location.



Appendix A. Creating Veeam ONE Database with SQL Script

In some circumstances, it might be undesired to create the Veeam ONE database automatically, using the **Veeam ONE Setup** wizard. For example, Veeam ONE components and the Microsoft SQL Server can be hosted on different systems, and you do not have sufficient permissions on the Microsoft SQL Server to create the database. In this case, you can use a SQL script to create the Veeam ONE database on a Microsoft SQL Server. The script is included with the Veeam ONE installation image.

To create the Veeam ONE database with the SQL script, perform the steps described below. Note that the database must be created before you start installation of Veeam ONE components.

Step 1. Locate the SQL Script

Download the Veeam ONE installation image and burn it to a blank CD/DVD or mount the image using disk image emulation software. If you are working with a virtual machine, use built-in tools of the virtualization management software to mount the installation image to the virtual machine.

In Windows Explorer, right-click the drive with the image, select **Open** and go to the `<CD Drive>\Addins\SQLScript` directory. Copy the `VeeamONE.sql` file to the location from which it can be accessed or run.

Step 2. Create the Veeam ONE Database

Connect to the necessary Microsoft SQL Server with Microsoft SQL Server Management Studio and create a new database (for example, *VeeamOne*).

Step 3. Run the SQL Script Against the Veeam ONE Database

Execute the `VeeamONE.sql` script against the Veeam ONE database in Microsoft SQL Server Management Studio.

Alternatively, you can execute the script using the **sqlcmd** utility. In the command prompt, run the command of the following form:

```
sqlcmd -S localhost\VEEAMSQL2017 -d VeeamOne -E -i "E:\Addins\SQLScript\VeeamONE.sql"
```

The following command-line options are used to run the script:

Option	Description
-S	Specifies the SQL Server instance to which **sqlcmd** connects.
-d	Specifies the name of the database against which the script is executed.

Option	Description
-E	Instructs **sqlcmd** to connect to the SQL Server Database Engine using Windows Integrated Security.
-i	Specifies the full path to the script file for execution.

Step 4. Grant Database Permissions

Create a Microsoft SQL Server account with required permissions. For details, see Connection to Microsoft SQL Server.

Appendix B. Data Collection Modes

Data collection mode determines what metrics Veeam ONE will collect, and specifies the product configuration in a number of areas. Choosing an appropriate data collection mode allows you to optimize monitoring and reporting performance and improve user experience in Veeam ONE.

Settings

Changing between data collection modes affects the following Veeam ONE settings.

Configuration Option	Description	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
VMware real-time performance	Timeout for collecting VMware vSphere real-time performance data.	30 minutes	30 minutes	N/A
	Sampling renewal interval for real-time counters.	20 seconds	300 seconds (5 minutes)	N/A
VMware historical performance	Sampling renewal interval for historical counters (older than one hour).	5 minutes	30 minutes	5 minutes
	Sampling renewal interval for historical counters (older than one week).	2 hours	2 hours	2 hours
Min tree check interval	Updating the object inventory tree in Veeam ONE Client.	10 seconds	1 minute	10 seconds
Page update delay	Loading data after choosing an object in the object inventory tree in Veeam ONE Client.	0.5 second	1.5 second	0.5 second
Get VM snapshot timeout	Timeout for collecting data about VM snapshot files from datastores.	900 seconds (15 minutes)	3600 seconds (1 hour)	900 seconds (15 minutes)
Virtual machines files data collection	Collecting information about VM files (for the *Active Snapshots* and *Garbage Files* reports).	Yes	No	No

Configuration Option	Description	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Hyper-V real-time performance	Timeout for collecting Microsoft Hyper-V real-time performance data.	30 minutes	30 minutes	N/A
	Sampling renewal interval for real-time counters.	60 seconds	300 seconds (5 minutes)	N/A

Collected Performance Metrics

Data collection mode defines what performance metrics must be collected.

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Available Memory	Backup Enterprise Manager	Yes	Yes	Yes
CPU Usage	Backup Enterprise Manager	Yes	Yes	Yes
Disk Bytes/sec	Backup Enterprise Manager	Yes	Yes	Yes
Memory Usage	Backup Enterprise Manager	Yes	Yes	Yes
Network Bytes Sent/sec	Backup Enterprise Manager	Yes	Yes	Yes
Available Memory	Backup Server	Yes	Yes	Yes
CPU Usage	Backup Server	Yes	Yes	Yes
Disk Bytes/sec	Backup Server	Yes	Yes	Yes
Memory Usage	Backup Server	Yes	Yes	Yes
Network Bytes Sent/sec	Backup Server	Yes	Yes	Yes

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Available Memory	Backup Repository	Yes	Yes	Yes
Backup Repository Capacity	Backup Repository	Yes	Yes	Yes
CPU Usage	Backup Repository	Yes	Yes	Yes
Disk Bytes/sec	Backup Repository	Yes	Yes	Yes
Memory Usage	Backup Repository	Yes	Yes	Yes
Network Bytes Sent/sec	Backup Repository	Yes	Yes	Yes
Repository File Backups Size	Backup Repository	Yes	Yes	Yes
Repository Image Backups Size	Backup Repository	Yes	Yes	Yes
Repository Used Space	Backup Repository	Yes	Yes	Yes
Slot Capacity	Backup Repository	Yes	Yes	Yes
Used Slots	Backup Repository	Yes	Yes	Yes
Available Memory	Backup Proxy	Yes	Yes	Yes
CPU Usage	Backup Proxy	Yes	Yes	Yes
CDP Proxy Cache Size	Backup Proxy	Yes	Yes	Yes
CDP Proxy Cache Usage	Backup Proxy	Yes	Yes	Yes
CDP Proxy Cache Usage %	Backup Proxy	Yes	Yes	Yes

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Disk Bytes/sec	Backup Proxy	Yes	Yes	Yes
Memory Usage	Backup Proxy	Yes	Yes	Yes
Network Bytes Sent/sec	Backup Proxy	Yes	Yes	Yes
Slot Capacity	Backup Proxy	Yes	Yes	Yes
Used Slots	Backup Proxy	Yes	Yes	Yes
Available Memory	WAN Accelerator	Yes	Yes	Yes
CPU Usage	WAN Accelerator	Yes	Yes	Yes
Disk Bytes/sec	WAN Accelerator	Yes	Yes	Yes
Memory Usage	WAN Accelerator	Yes	Yes	Yes
Network Bytes Sent/sec	WAN Accelerator	Yes	Yes	Yes
Available Memory	Tape Server	Yes	Yes	Yes
CPU Usage	Tape Server	Yes	Yes	Yes
Disk Bytes/sec	Tape Server	Yes	Yes	Yes
Memory Usage	Tape Server	Yes	Yes	Yes
Network Bytes Sent/sec	Tape Server	Yes	Yes	Yes
External Repository Used Space	External Repository Used Space	Yes	Yes	Yes

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Object Storage Repository Used Space	Object Storage Repository Used Space	Yes	Yes	Yes
Storage Usage	VMware Cloud Director Organization VDC	Yes	Yes	No
CPU Usage	VMware Cloud Director Provider VDC	Yes	Yes	No
Memory Usage	VMware Cloud Director Provider VDC	Yes	Yes	No
Storage Space Usage	VMware Cloud Director Provider VDC	Yes	No	No
Storage Space Usage Pct	VMware Cloud Director Provider VDC	Yes	Yes	No
Backup Job Memory Usage	Veeam Backup & Replication Objects	Yes	Yes	Yes
Backup Job Processor Usage	Veeam Backup & Replication Objects	Yes	Yes	Yes
Adapter I/O	ESXi Host	Yes	No	No
Adapter Read I/O	ESXi Host	Yes	No	No
Adapter Read Latency	ESXi Host	Yes	No	No
Adapter Read Rate	ESXi Host	Yes	No	No
Adapter Write I/O	ESXi Host	Yes	No	No
Adapter Write Latency	ESXi Host	Yes	No	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Adapter Write Rate	ESXi Host	Yes	No	No
Average CPU Ready	ESXi Host	Yes	Yes	No
CPU Usage	ESXi Host	Yes	Yes	No
CPU Usage MHz	ESXi Host	Yes	Yes	No
Disk/ESXi: Datastore Bus Resets	ESXi Host	Yes	Yes	No
Disk/ESXi: Datastore Command Aborts	ESXi Host	Yes	Yes	No
Disk/ESXi: Datastore Highest Latency	ESXi Host	Yes	Yes	No
Disk/ESXi: Datastore I/O	ESXi Host	Yes	Yes	No
Disk/ESXi: Datastore Latency Observed by VMs	ESXi Host	Yes	No	No
Disk/ESXi: Datastore Maximum Queue Depth	ESXi Host	Yes	No	No
Disk/ESXi: Datastore Read I/O	ESXi Host	Yes	Yes	No
Disk/ESXi: Datastore Read Latency	ESXi Host	Yes	Yes	No
Disk/ESXi: Datastore Read Rate	ESXi Host	Yes	Yes	No
Disk/ESXi: Datastore Usage	ESXi Host	Yes	Yes	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Disk/ESXi: Datastore Write I/O	ESXi Host	Yes	Yes	No
Disk/ESXi: Datastore Write Latency	ESXi Host	Yes	Yes	No
Disk/ESXi: Datastore Write Rate	ESXi Host	Yes	Yes	No
Memory Active	ESXi Host	Yes	Yes	No
Memory Baloon	ESXi Host	Yes	Yes	No
Memory Compressed	ESXi Host	Yes	No	No
Memory Consumed	ESXi Host	Yes	Yes	No
Memory Latency	ESXi Host	Yes	No	No
Memory Overhead	ESXi Host	Yes	No	No
Memory Pressure	ESXi Host	Yes	Yes	No
Memory Shared	ESXi Host	Yes	No	No
Memory Shared Common	ESXi Host	Yes	No	No
Memory Swap Used	ESXi Host	Yes	Yes	No
Memory Usage	ESXi Host	Yes	Yes	No
Network Receive Rate	ESXi Host	Yes	Yes	No
Network Transmit Rate	ESXi Host	Yes	Yes	No
Network Usage	ESXi Host	Yes	Yes	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Packet Receive Errors	ESXi Host	Yes	No	No
Packet Transmit Errors	ESXi Host	Yes	No	No
Path I/O	ESXi Host	Yes	No	No
Path Read I/O	ESXi Host	Yes	No	No
Path Read Latency	ESXi Host	Yes	No	No
Path Read Rate	ESXi Host	Yes	No	No
Path Write I/O	ESXi Host	Yes	No	No
Path Write Latency	ESXi Host	Yes	No	No
Path Write Rate	ESXi Host	Yes	No	No
Power Usage	ESXi Host	Yes	No	No
Receive Packets Dropped	ESXi Host	Yes	No	No
Received Packets per Second	ESXi Host	Yes	No	No
Swap In Rate	ESXi Host	Yes	No	No
Swap Out Rate	ESXi Host	Yes	No	No
Total Errors	ESXi Host	Yes	No	No
Total Packets Dropped	ESXi Host	Yes	No	No
Transmit Packets Dropped	ESXi Host	Yes	No	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Transmitted Packets per Second	ESXi Host	Yes	No	No
VM Heartbeat	ESXi Host	Yes	Yes	No
Average CPU Idle All Cores	vSphere Virtual Machine	Yes	No	No
Average CPU Ready All Cores	vSphere Virtual Machine	Yes	Yes	No
Average CPU Standstill All Cores	vSphere Virtual Machine	Yes	No	No
Average CPU Wait All Cores	vSphere Virtual Machine	Yes	No	No
CPU Co-Stop All Cores	vSphere Virtual Machine	Yes	No	No
CPU Usage	vSphere Virtual Machine	Yes	Yes	No
CPU Usage MHz	vSphere Virtual Machine	Yes	Yes	No
Datastore Bus Resets	vSphere Virtual Machine	Yes	Yes	No
Datastore Command Aborts	vSphere Virtual Machine	Yes	Yes	No
Datastore Highest Latency	vSphere Virtual Machine	Yes	Yes	No
Datastore I/O	vSphere Virtual Machine	Yes	Yes	No
Datastore Read I/O	vSphere Virtual Machine	Yes	Yes	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Datastore Read Latency	vSphere Virtual Machine	Yes	Yes	No
Datastore Read Rate	vSphere Virtual Machine	Yes	Yes	No
Datastore Usage	vSphere Virtual Machine	Yes	Yes	No
Datastore Write I/O	vSphere Virtual Machine	Yes	Yes	No
Datastore Write Latency	vSphere Virtual Machine	Yes	Yes	No
Datastore Write Rate	vSphere Virtual Machine	Yes	Yes	No
Disk/vSAN: Recovery Write I/O	vSphere Virtual Machine	Yes	No	No
Disk/vSAN: Recovery Write Latency	vSphere Virtual Machine	Yes	No	No
Disk/vSAN: Recovery Write Rate	vSphere Virtual Machine	Yes	No	No
Guest Disk Free Space	vSphere Virtual Machine	Yes	No	No
Guest Disk Usage	vSphere Virtual Machine	Yes	Yes	No
Memory Active	vSphere Virtual Machine	Yes	Yes	No
Memory Baloon	vSphere Virtual Machine	Yes	Yes	No
Memory Baloon Percent	vSphere Virtual Machine	Yes	Yes	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Memory Compressed	vSphere Virtual Machine	Yes	No	No
Memory Consumed	vSphere Virtual Machine	Yes	Yes	No
Memory Entitlement	vSphere Virtual Machine	Yes	No	No
Memory Latency	vSphere Virtual Machine	Yes	No	No
Memory Overhead	vSphere Virtual Machine	Yes	No	No
Memory Saved by Zipping	vSphere Virtual Machine	Yes	No	No
Memory Shared	vSphere Virtual Machine	Yes	No	No
Memory Swapped	vSphere Virtual Machine	Yes	Yes	No
Memory Usage	vSphere Virtual Machine	Yes	Yes	No
Network Receive Rate	vSphere Virtual Machine	Yes	Yes	No
Network Transmit Rate	vSphere Virtual Machine	Yes	Yes	No
Network Usage	vSphere Virtual Machine	Yes	Yes	No
Power Usage	vSphere Virtual Machine	Yes	No	No
Process CPU Usage	vSphere Virtual Machine	Yes	Yes	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Process Memory Usage	vSphere Virtual Machine	Yes	Yes	No
Read I/O	vSphere Virtual Machine	Yes	No	No
Read Latency	vSphere Virtual Machine	Yes	No	No
Read Rate	vSphere Virtual Machine	Yes	No	No
Received Packets per Second	vSphere Virtual Machine	Yes	No	No
Running Services	vSphere Virtual Machine	Yes	Yes	No
Swap In Rate	vSphere Virtual Machine	Yes	No	No
Swap Out Rate	vSphere Virtual Machine	Yes	Yes	No
Transmitted Packets per Second	vSphere Virtual Machine	Yes	No	No
Virtual Disk Provisioned	vSphere Virtual Machine	Yes	Yes	No
Virtual Disk Used	vSphere Virtual Machine	Yes	Yes	No
VM Hearbeat	vSphere Virtual Machine	Yes	Yes	No
Write I/O	vSphere Virtual Machine	Yes	No	No
Write Latency	vSphere Virtual Machine	Yes	No	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Write Rate	vSphere Virtual Machine	Yes	Yes	No
Disk/Datastore: Datastore Bus Resets	vSphere Datastore	Yes	Yes	No
Disk/Datastore: Datastore Command Aborts	vSphere Datastore	Yes	Yes	No
Disk/Datastore: Datastore I/O	vSphere Datastore	Yes	Yes	No
Disk/Datastore: Datastore Provisioned Space	vSphere Datastore	Yes	Yes	No
Disk/Datastore: Datastore Read I/O	vSphere Datastore	Yes	Yes	No
Disk/Datastore: Datastore Read Latency	vSphere Datastore	Yes	Yes	No
Disk/Datastore: Datastore Read Rate	vSphere Datastore	Yes	Yes	No
Disk/Datastore: Datastore Usage	vSphere Datastore	Yes	Yes	No
Disk/Datastore: Datastore Write I/O	vSphere Datastore	Yes	Yes	No
Disk/Datastore: Datastore Write Latency	vSphere Datastore	Yes	Yes	No
Disk/Datastore: Datastore Write Rate	vSphere Datastore	Yes	Yes	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Disk/Datastore: Free Space	vSphere Datastore	Yes	Yes	No
Average Pressure	Hyper-V Host	Yes	Yes	No
Committed Bytes	Hyper-V Host	Yes	No	No
Disk/Host: Avg Disk Queue Length	Hyper-V Host	Yes	Yes	No
Disk/Host: Avg Disk Read Bytes/sec	Hyper-V Host	Yes	Yes	No
Disk/Host: Avg Disk sec/Read	Hyper-V Host	Yes	Yes	No
Disk/Host: Avg Disk sec/Write	Hyper-V Host	Yes	Yes	No
Disk/Host: Avg Disk Usage Bytes/sec	Hyper-V Host	Yes	Yes	No
Disk/Host: Avg Disk Write Bytes/sec	Hyper-V Host	Yes	Yes	No
Guest Run Time	Hyper-V Host	Yes	No	No
Heartbeat	Hyper-V Host	Yes	Yes	No
Heartbeat Status	Hyper-V Host	Yes	Yes	No
Host CPU Wait Time	Hyper-V Host	Yes	Yes	No
Hyper-V Services Memory Consumed	Hyper-V Host	Yes	Yes	No
Hyper-V Services Memory Usage	Hyper-V Host	Yes	Yes	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Hypervisor Run Time	Hyper-V Host	Yes	No	No
Idle Time	Hyper-V Host	Yes	Yes	No
Memory Consumed	Hyper-V Host	Yes	Yes	No
Memory Usage	Hyper-V Host	Yes	Yes	No
Network Bytes Received/sec	Hyper-V Host	Yes	Yes	No
Network Bytes Sent/sec	Hyper-V Host	Yes	Yes	No
Network Bytes Total/sec	Hyper-V Host	Yes	Yes	No
Network Offloaded Connections	Hyper-V Host	Yes	No	No
Network Outbound Errors	Hyper-V Host	Yes	Yes	No
Network Output Queue Length	Hyper-V Host	Yes	Yes	No
Network Packets Received/sec	Hyper-V Host	Yes	No	No
Network Packets Sent/sec	Hyper-V Host	Yes	No	No
Network Packets/sec	Hyper-V Host	Yes	No	No
Network Received Errors	Hyper-V Host	Yes	No	No
Page Faults/sec	Hyper-V Host	Yes	No	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Page Reads/sec	Hyper-V Host	Yes	No	No
Page Writes/sec	Hyper-V Host	Yes	No	No
Pages Input/sec	Hyper-V Host	Yes	No	No
Pages Output/sec	Hyper-V Host	Yes	No	No
Pages/sec	Hyper-V Host	Yes	Yes	No
Total Interrupts/sec	Hyper-V Host	Yes	No	No
Total Run Time	Hyper-V Host	Yes	Yes	No
Total Run Time MHz	Hyper-V Host	Yes	Yes	No
vCPU Total Run Time	Hyper-V Host	Yes	No	No
Virtual Switch Bytes Received/sec	Hyper-V Host	Yes	No	No
Virtual Switch Bytes Sent/sec	Hyper-V Host	Yes	No	No
Virtual Switch Bytes/sec	Hyper-V Host	Yes	No	No
Virtual Switch Packets Received/sec	Hyper-V Host	Yes	No	No
Virtual Switch Packets Sent/sec	Hyper-V Host	Yes	No	No
Virtual Switch Packets/sec	Hyper-V Host	Yes	No	No
CPU Wait Time	Hyper-V Virtual Machine	Yes	Yes	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Current Pressure	Hyper-V Virtual Machine	Yes	Yes	No
Demand	Hyper-V Virtual Machine	Yes	Yes	No
Errors/min	Hyper-V Virtual Machine	Yes	Yes	No
Flushes/min	Hyper-V Virtual Machine	Yes	Yes	No
Guest Disk Free Space	Hyper-V Virtual Machine	Yes	Yes	No
Guest Disk Used Space	Hyper-V Virtual Machine	Yes	Yes	No
Guest Run Time	Hyper-V Virtual Machine	Yes	Yes	No
Guest vCPU Guest Run Time MHz	Hyper-V Virtual Machine	Yes	Yes	No
Guest Visible Physical Memory	Hyper-V Virtual Machine	Yes	Yes	No
Hypervisor Run Time	Hyper-V Virtual Machine	Yes	No	No
IOPS	Hyper-V Virtual Machine	Yes	Yes	No
Legacy Network Bytes /sec	Hyper-V Virtual Machine	Yes	No	No
Legacy Network Bytes Dropped/sec	Hyper-V Virtual Machine	Yes	No	No
Legacy Network Bytes Received/sec	Hyper-V Virtual Machine	Yes	No	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Legacy Network Bytes Sent/sec	Hyper-V Virtual Machine	Yes	No	No
Physical Memory	Hyper-V Virtual Machine	Yes	Yes	No
Process CPU Usage	Hyper-V Virtual Machine	Yes	Yes	No
Process Memory Usage	Hyper-V Virtual Machine	Yes	Yes	No
Reads/sec	Hyper-V Virtual Machine	Yes	Yes	No
Running Services	Hyper-V Virtual Machine	Yes	Yes	No
Total Run Time	Hyper-V Virtual Machine	Yes	Yes	No
vCPU Total Run Time MHz	Hyper-V Virtual Machine	Yes	No	No
Virtual Disk Provisioned	Hyper-V Virtual Machine	Yes	Yes	No
Virtual Disk Used	Hyper-V Virtual Machine	Yes	Yes	No
Virtual Network Bytes /sec	Hyper-V Virtual Machine	Yes	Yes	No
Virtual Network Bytes Received/sec	Hyper-V Virtual Machine	Yes	Yes	No
Virtual Network Bytes Sent/sec	Hyper-V Virtual Machine	Yes	Yes	No
Virtual Network Packets Received/sec	Hyper-V Virtual Machine	Yes	No	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Virtual Network Packets Sent/sec	Hyper-V Virtual Machine	Yes	No	No
Virtual Storage Read Bytes/sec	Hyper-V Virtual Machine	Yes	Yes	No
Virtual Storage Usage Bytes/sec	Hyper-V Virtual Machine	Yes	Yes	No
Virtual Storage Write Bytes/sec	Hyper-V Virtual Machine	Yes	Yes	No
Writes/sec	Hyper-V Virtual Machine	Yes	Yes	No
Disk Free Space	Hyper-V Physical Disk	Yes	Yes	No
Disk Provisioned Space	Hyper-V Physical Disk	Yes	Yes	No
Disk Used Space	Hyper-V Physical Disk	Yes	Yes	No
Disk/Physical Disk: Avg Disk Queue Length	Hyper-V Physical Disk	Yes	No	No
Disk/Physical Disk: Avg Disk sec/Read	Hyper-V Physical Disk	Yes	Yes	No
Disk/Physical Disk: Avg Disk sec/Write	Hyper-V Physical Disk	Yes	Yes	No
Disk/Physical Disk: Disk Bytes/sec	Hyper-V Physical Disk	Yes	Yes	No
Disk/Physical Disk: Disk Read Bytes/sec	Hyper-V Physical Disk	Yes	Yes	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Disk/Physical Disk: Disk Transfers/sec	Hyper-V Physical Disk	Yes	Yes	No
Disk/Physical Disk: Disk Write Bytes/sec	Hyper-V Physical Disk	Yes	Yes	No
Cache IO Read Bytes/sec	Hyper-V CSV 2012	Yes	No	No
Cache Reads/sec	Hyper-V CSV 2012	Yes	No	No
CSV FS Free Space	Hyper-V CSV 2012	Yes	Yes	No
CSV FS Provisioned Space	Hyper-V CSV 2012	Yes	No	No
CSV FS Used Space	Hyper-V CSV 2012	Yes	No	No
Disk/CSV 2012: Direct Bytes/sec	Hyper-V CSV 2012	Yes	Yes	No
Disk/CSV 2012: Direct IOPS	Hyper-V CSV 2012	Yes	Yes	No
Disk/CSV 2012: Direct Latency	Hyper-V CSV 2012	Yes	Yes	No
Disk/CSV 2012: IOPS	Hyper-V CSV 2012	Yes	No	No
Disk/CSV 2012: Latency	Hyper-V CSV 2012	Yes	Yes	No
Disk/CSV 2012: Queue Length	Hyper-V CSV 2012	Yes	No	No
Disk/CSV 2012: Read Bytes/sec	Hyper-V CSV 2012	Yes	Yes	No
Disk/CSV 2012: Read Latency	Hyper-V CSV 2012	Yes	Yes	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Disk/CSV 2012: Read Queue Length	Hyper-V CSV 2012	Yes	No	No
Disk/CSV 2012: Reads/sec	Hyper-V CSV 2012	Yes	No	No
Disk/CSV 2012: Redirected Bytes/sec	Hyper-V CSV 2012	Yes	Yes	No
Disk/CSV 2012: Redirected IOPS	Hyper-V CSV 2012	Yes	Yes	No
Disk/CSV 2012: Redirected Latency	Hyper-V CSV 2012	Yes	Yes	No
Disk/CSV 2012: Total Bytes/sec	Hyper-V CSV 2012	Yes	Yes	No
Disk/CSV 2012: Write Bytes/sec	Hyper-V CSV 2012	Yes	Yes	No
Disk/CSV 2012: Write Latency	Hyper-V CSV 2012	Yes	Yes	No
Disk/CSV 2012: Write Queue Length	Hyper-V CSV 2012	Yes	No	No
Disk/CSV 2012: Writes/sec	Hyper-V CSV 2012	Yes	No	No
SMB Share Free Space	Hyper-V Share	Yes	Yes	No
SMB Share Used Space	Hyper-V Share	Yes	No	No
SMB Share Provisioned Space	Hyper-V Share	Yes	No	No
Disk/Share: IOPS	Hyper-V Share	Yes	No	No
Disk/Share: Writes/sec	Hyper-V Share	Yes	No	No

Performance Metric	Object Type	Veeam backup data and virtual infrastructure	Veeam backup data and large-scale virtual infrastructure	Veeam Backup Data Only
Disk/Share: Reads/sec	Hyper-V Share	Yes	No	No
Disk/Share: Virtual Storage Usage Bytes/sec	Hyper-V Share	Yes	No	No
Disk/Share: Virtual Storage Write Bytes/sec	Hyper-V Share	Yes	Yes	No
Disk/Share: Virtual Storage Read Bytes/sec	Hyper-V Share	Yes	Yes	No
Disk/Share: SMB Share Error Count/min	Hyper-V Share	Yes	No	No
Disk/Share: SMB Share Flush Count/min	Hyper-V Share	Yes	No	No

Appendix C. Veeam ONE Certificates

If you want to use a certificate signed by your own Certification Authority (CA), consider the following:

- Make sure that Veeam ONE server trusts the CA. That means that the Certification Authority certificate must be added to the Trusted Root Certification Authority store on the Veeam ONE server. Also, Certificate Revocation List (CRL) must be accessible from the Veeam ONE server.
- If you use Windows Server Certification Authority, issue a Veeam ONE certificate based on the built-in Subordinate Certification Authority template or templates similar to it. You can manage templates with the Certificate Templates MMC snap-in.

Veeam ONE Website Certificate Requirements

- The certificate subject is equal to the fully qualified domain name of the Veeam ONE server. For example: `oneserver.domain.local`.
- The **Subject Alternative Name** field contains both the FQDN and the NetBIOS name. You can add multiple DNS entries in the following format: `DNS:oneserver.domain.local,DNS:oneserver`.
- The minimum key size is 2048 bits.
- The key usage is `Digital Signature, Non-Repudiation, Key Encipherment, Data Encipherment`.
- The enhanced key usage is `Server Authentication (1.3.6.1.5.5.7.3.1)`.

Veeam ONE Web API Certificate Requirements

- The certificate subject is equal to the fully qualified domain name of the Veeam ONE server. For example: `oneserver.domain.local`.
- The **Subject Alternative Name** field contains the FQDN, NetBIOS and localhost name. You can add multiple DNS entries in the following format: `DNS:oneserver.domain.local,DNS:oneserver,DNS:localhost`.
- The minimum key size is 2048 bits.
- The key usage is `Digital Signature, Non-Repudiation`.
- The enhanced key usage is `Server Authentication (1.3.6.1.5.5.7.3.1)`.